



















FLORAL WORLD

AND

GARDEN GUIDE.

EDITED

 $\mathbf{B}\mathbf{Y}$

SHIRLEY HIBBERD, ESQ., F.R.H.S.

1867.



LONDON:
GROOMBRIDGE AND SONS,
5, PATERNOSTER ROW.

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ULISIN W. JAMON IN

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HARRILD, PROFER, LONDON.

INDEX.

Acacia	43	Berberis Japonica, concinna, For-	
Achimenes	126	tunei, etc.	345
Adiantums, greenhouse and hardy	169	tunei, etc. Biennial lifting of miniature fruit-	
Adiantums for cases	173	trees	87
Adiantums of the stove	195	Bit of gossip on herbaceous plants	26
Adiantum pedatum	37	Bocconia	107
Ailanthi-culture	287	Border for roses	351
Alpine strawberry	63	Borecole or kale	332
Alternanthera paronychioides	50	Boronias	273
Amaranthus melancholicus 51,	107	Bourbon roses	81
American mode of growing black-		Brahea dulcis	70
berries	122	Briers for budding	321
Anæctochilus setaceus, rival to	46	British Queen strawberry, cultiva-	
Angular prickly shield fern	273	tion of	40
Annuals for the greenhouse in early		Bulbous flowers in the garden,	
spring	250	squares, and public walks of	
Antennaria tomentosa	50	large towns	313
Aralia papyrifera	167	Bulbs for windows and greenhouses	21
Arcanum of perpetual beauty	97	Burrs used for rockery	4
Areca Bauerii	69		
Artemisia annua	107	Cacti, on the cultivation of the	366
Artemisia argentea	. 51	Caladiums 67,	127
Artichoke	291	Calceolarias	231
Artificial stone for gardens	193	Camellia house	64
Art of increasing plants by cuttings	73	Camellias, six foot	352
Arundinaria falcata	166	Cannas	16
Arundo conspicua 51, 107,		Caraganas	S
Asparagus	292	Carnations	155
Asplenium angustifolium	37	Caryota urens	70
Asplenium ebeneum	38	Cassia	43
Aspidistra lurida variegata	216	Caught napping	5.5
Aster for exhibition and decoration	116	Chamædorea atrovirens	70
Athyrium asplenoides	38	Chamædorea elatior	-0
Aucuba berries	159	Chamæpuce diacantha	109
Aucuba Himalaica	192	Chamærops excelsa	69
Aucuba Japonica	134	Chamærops Fortunei	69
Aucubas	235	Chamærops humilis	69
Auricula		Chapter for ladies on gathering and	
Azalea suckers	126	arranging flowers	185
ZEDETOR PROTECTO	120	Charcoal in pots	64
Bambusa Fortunei	237	Charlock	288
	54	Cherry and plum-tree grafts failing	357
Barberry hedge	331	Choice garden, notes for	14
Bedders, a few select	209	Chorozema	272
Bedders, few of the most effective		Chrysanthemum Sensation	49
flowering	71	Chrysanthemums	63
Bedders, superb variegated-leaved	49	Chrysanthemums in pots, cultivated	
Bedding combination	152	for exhibition	21
Beet-root	132	Chrysanthemums, selection of	93
Berberidopsis corallina	236	Chrysanthemum in 1867, the	353
Berberis	190	Cineraria	122

iv INDEX.

Clematis lanuginosa	7	Finger-post for purchasers of plants,	
Cocoa-nut fibre refuse for orchids	215	seeds, etc., 92, 125, 154, 283,	
Cocos australis	70	315, 348.	
Coleus Verschaffelti	51	Flowering of the yucca for the pur-	
Collecting and selecting	65	pose of display	85
Colours of trees in autumn	299	Forcing sea-kale	19
Colours of trees in addumin	200		
Conifers for the flower-garden, and		Forcing strawberries	350
its immediate surroundings	308	Fourcroya longæva	251
Constitution, soil, and general treat-		Fruit erop of 1867	161
mont of the armigula	10	Fruit-growing in England	289
ment of the auricula			
Convolvulus mauritanicus	72	Fruit-trees on poor soils	69
Cooking sea-kale	96	Fruit prospects	325
Cosmelia rubra	272	Fuchsia cultivation	181
Cosmena ruora			
Crambe cordifolia	166	Fuchsia Golden Fleece	328
Crinum capense	167	Fuchsias, selection of	92
Cuttings, art of increasing plants by	73		
Cuttings in coses not fibre	63	Gardon daziona nieturazana	321
Cuttings in cocoa-nut fibre		Garden designs, picturesque	021
Cyperus	41	Garden Guide, 31, 95, 125, 157, 187,	
Cyrtomium caryotideum	38	218, 252, 285, 319, 349, 374.	
Cyrtomium falcatum		Garden Oracle for 1867	58
Cyrtomium raicasum	00	Carden Officie for 1007	
		Garden walks	256
Dactylis glomerata	50	Gathering a fern	287
Dahlia cultivation	141	Gatherings from exhibitions 219,	253
	210	Gazania anlandona	7:
Dahlia Imperialis		Gazania splendens	72 127
Dahlias	71	Genetyllis and hedaroma	124
Dahlias, selection of fifty	125	Generic distinction between cala-	
Daisy, the	78		126
		dium and alocasia	
Datura	42	Genista	273
Daubentonia	41	Geranium Brilliantissima	209
Davaliias	191	Geraniums	15
Delphinium formosum	167		52
Despitation formosum		Gesnera zebrina	238
Dendrobium moniliforme	62	Gladioli	
Designs for select beds of hardy		Gladioli, hints on the cultivation of	- 8€
plants	280	Gladioli, selection of	94
plants Diosma capitata	272	Gladioli, selection of Glance at the rosery	296
D. 11. Cli	2/2	Clance at the rosery	
Double Clitoria ternatea	288	Globe amaranthus, culture of	77
Double white sweet pea	127	Golden Balm	50
Dracæna australis	167	Golden Feather pyrethrum	209
			209
77 1 9 1 1 6 11		Goldfinch geranium	
Early-flowering plants for the greenhouse		Grafting the grape vine	213
greenhouse	271	Grafting vines	376
Effects of the past winter	164	Grave vines	302
Flooring rofloring	236	Grand adred anniques	104
Eleagnus reflexus		Green-edged auricula	
Elymus glauca	168	Greenhouse construction	158
English fruit-growing	289	Greenhouse and hardy adiantums	169
Epacris	272	Greenhouse spring-flowers	24
Epacris	204		
Parathanana and al-11-		Greenhouse plants in winter, pre-	200
Eranthemum pulchellum	278	servation of	363
Erythrina	42	Grevillea	45
Eucharis amazonica	159	Grey-edged auricula	104
Euonymus latifolia aurea	236	Ground vinova 190 158	190
Thuonymus tactiona aurea		Ground vinery120, 158,	016
Euonymus radicans variegata	236	Gymnogrammas	216
Eurya latifolia variegata	236		
Eutaxia myrtifolia	272	Hæmony	376
Evenement for windows	61	Hardings of salaifu	192
Evergreen for windows		Hæmony	
Evergreen shrubs for a border	350	Hard-wooded plants	159
Extenso grape vines	302	Hardy adiantums	172
		Hardy and nearly hardy plants	172 68
Fahiana imbricata	272	Hardy decidences trees	53
Fabiana imbricata	2/4	Hardy deciduous trees	
Failures in small gardens	257	Hardy exotic terns	35
Ferdinandia emicus	110	Hardy flowers of the year	333
Ferns and fern cases 8.		Hardy herbaceous plants 27, 56, 64	191
	61	Hardy plants for the forman-gorden	165
Ferns from spores		Hardy plants for the flower-garden	
Ferns, hardy exotic	35	Heating a small plant-house	126
Ferula communis	109	Heating with a flue	160
Few of the most effective flowering		Hedera Algeriensis	7
hedders	71	Hodge plant harbony	54
bedders	127	Hedge plant, barberry	$\frac{54}{72}$
Fifty spring flowers		Heliotropes	

Heracleum giganteum	168 27	Mushroom cultivation	148 32
Herbaceous plants, a bit of gossip	26		950
Herbaceous plants easy of culture		Nemophila insignis	217
in all parts of the British isles Herbaceous plants for rockeries	111	New roses of this and last year	177
Hints on plant-growing in living	374	Nicotiana	16
Home-grown briers for budding	174 321	Noble hardy plants for the flower	72
Horticultural affairs	88	garden	165
Hortus fenestralis	129 73	Notes on Messrs. F. and A. Smith's	327
Hyacinths	315	tricolor and bronze zonale ge-	
Hybrid perpetuals	80	raniums	267
Iberis, or candytuft	335	Notes on new bedding plants	327
Impatiens jerdoniæ	147	Œnothera prostrata	72
Ilex Fortunei	236 176	On some nearly hardy exotic ferns Orange culture	35 278
Inarching vines	50	Osmanthus ilicifolia	236
Iresine herbstii	50	Osmunda cinnamomea	39
lvy-leaved geranium, L'elegante	209 146	Oxylobium retusum	273
Ivy, some uses ofIxias and tritomas	233	Pampas grass126,	165
		Pansy cultivation	144
Japanese plants suitable for Eng-	235	Pansy, Imperial Blue	329 154
lish gardens	7	Pansies	168
		Paris Exhibition	157
Kennedia monophylla	273	Paul's rose garden Peach-houses and peach-trees that	221
Lantanas	72	have fruited	344
Lapageria rosea	352	Peaches and nectarines without	-22
Large-flowering pelargoniums	233	walls or glass	329 150
Lastrea f. m., var. grandiceps	$\frac{237}{277}$	Pelargonium culture Pelargoniums	155
Lastrea Goldieana	38	Perennial cucumber	109
Lastrea marginalis	38 38	Petunias	72 267
Lastrea Sieboldii	38	Phlox	331
Latania Bourbonica	69	Phœnix dactylifera	70
Leaf impressions, how to take	208 273	Phormium tenax	167 167
Leicester garden vase	350	Picotees	155
Ligularia gigantea	168	Picotees, carnations, etc	128
Lilium auratum	$\frac{166}{320}$	Picturesque in garden designs	321
Lilium eximium Lilium giganteum	166	Pimelea	272 375
List of hardy deciduous trees	53	Pinks Pinks	156
Lobelia erinus, Miss Murphy	210 210	Plant-growing in living-room	174 95
Lobelia, Indigo Blue	328	Planting ground vineries	287
Lobelias	233	Planting pincushion-beds	62
Lomaria Chilensis	39 39		230
Lonicera brachypoda reticulata	7	Plants destroyed mysteriously	64
Loudon's Hortus Brittanicus	96	Plants for rockeries	7
Love-lies-bleeding	107	Pleopeltis lycopodioides	83 83
Luculia gratissima	342	Pleopeltis pustulata	83
Management of window plants	239	Pleopeltis terminalis	83
Maxims on propagating	$\begin{array}{c} 76 \\ 250 \end{array}$	Plunging system 97, Poa trivialis	108
Mildewed vines	350	Poa trivialis argentea	
Moss on gravel walks	95	Poa trivialis argentea	275
Mushrooms under the greenhouse	207	Polystichum pungens	39 128
stage	201	Potatoes	

Potting the cuttings	75	Soapsuds as manure	94
Pot vines, raising and fruiting	58	Soil for the auricula	10
Preserving fruit, advice on	369	Solanums	15
Prince's Feather	107	Spring flowers for windows, green-	
Propagating, maxims on	76	houses, and choice flower-beds	24
Propagation and preservation of		Standard wallflowers	288
bedding plants	248	Stove for plant-house	158
Pruning	375	Strawberry, British Queen	40
Pruning nut-trees	62	Strawberries, planting	17
Pruning vines	63	Strawberries, the best	304
Pultenia stricta	272	Striking plants to be grown from	
Pyrethrum, Golden Feather	328	seed for the choice garden	106
	1	Striped-leaved maize	110
Raising and fruiting pot vines, as		Struthiopteris Germanica	39
practised in England	58	Sub-tropical plants	159
Rambling thoughts	279	Sub-tropical plants for the choice	
Raspberry and blackberry, the	359	garden	67
Retinospora lycopodioides	236	Sub-tropical plants that may be	
Retinospora obtusa	236	grown from seed	14
Rheum emodi	168	Sub-tropicals that may be grown	
Rhedodendrons	191	from seed	42
Rhododendrons, propagating	352	Succulents for rockeries	9
Rhubarb cultivation from early sup-		Summer salading	133
plies	79	Superb variegated-leaved bedders	49
Rhus cotinus	7	m 11 1 2 2	
Rhyncospermum jasminoides	159	Tall lobelias	234
Ricinus	46	Tansy	233
Rival to Anæctochilus setaceus	46	Tea-scented roses	80
Rockery at Stoke Newington	3		70
Rockeries, plants for	7	Three groups of good roses	338
Rose in a tub	319	Inrip on greenhouse terns	35]
Rosery, glance at	296	Thinning the crop of fruits in the	
Rosmarinus officinalis	7	orchard-house	118
Roses in 186780,	, 226	Thrinax parviflora Thujopsis dolabrata	70
Roses, new, of this and last year	177	Thujopsis dolabrata	236
Roses on Manetti stocks	351	Todea hymenophylloides	8
Roses, three groups of good	338	Transplanting trees Treatment of Luculia gratissima	310
Roses, winter propagation of	25	Treatment of Luculia gratissima	345
		Tricolor and bronze zonale ge-	0.01
Sabal Adamsonii	70	raniums	26
Salading during the summer	133	Tricolor geraniums	28
Salsafy, cultivation of	110	Tricolor-leaved pelargoniums	24
Santolina incana	50	Tritoma uvaria	16
Schizanthus pinnata	251	Tropæolum Advancer	20
Scorzonera	159	Tropæolums	72
Scotch thistle	109	Tropæolums, King of Scarlets and	70
Seaforthia elegans	70	Scarlet Gem	19
Sea-kale, its culture, with remarks		TT 0.11 *	7.0
on forcing it	19	Uses of the ivy	14
Sedum spectabile	234	TT 1 C + C1 + C +	
Seedling roses	62	Value of cocoa-nut fibre refuse in	071
Seeds and seedlings of auricula	47	the cultivation of orchids	21
Seeds to be grown in month of July	211	Variegated conifers	158
Select bedders	209	Variegated Cyperus alternifolius,	90
Select bedding combination	152	cultivation of	260
Selection of vegetables for 1867	89	Variegated geraniums	327 50
Selection of first-class herbaceous		Variegated ivies	
plants of easy culture in all		Variegated ivy	6.
parts of the British isles	111	Variegated leaves	250
Selfs, auricula	103	Variegated-leaved geraniums	62
Sensitive plant	307	Variegated-leaved plants for rock-	
Sensitive plant		eries	233
garden Shady border Shape and flowers which their	264	Variegated willow herb	00
Shady border	320	Vegetables for 1867 Villa kitchen garden, 199, 242, 261,	901
Diffuos and nowers which thrive	000	villa kitchen garden, 199, 242, 261,	231
under the drip of trees	308	331, 356.	cc
Skimmias and their cultivation	199	Vine, a fine	69
Snowdrops on grass lawns	307	vine disease	6-

PAGE	PAGE
Vine leaves from Norfolk 253	Window plants 239
Vines, inarching 176	Window spring flowers 24
Vines in ground vinery 319 Viola cornuta 256, 329	Winter propagation of roses 25
Viola cornuta	Winter treatment of kitchen-
Verbenas	gardens 318
Verbesina verbascifolia	Woodwardia orientalis 40
Virginian creeper 351	Woodwardia radicans 39
Vitis hederacea 7	Worms on lawns 350
Weeping trees 339	Yucca flowering for display 85
White-edged auricula 105	
Wigandia 45	Zonale geraniums 230
Window boxes 24	
77224011 80404 11111111111111111111111111111	
277777 77	T ANTON
NEW P	LANTS.
Acer (Polymorphum) palmatum 318	Curcuma Australasica 91
Acer (Polymorphum) palmatum	Cymbidium Hookerianum
sanguineum 318	Cypella cærulea 123
Adiantum scutum 187	Cypripedium Schlimii
Æchmea glomerata 374	Cyrtodeira Montalensis 373
Aerides Vandarum 373	Dalechampia Roezliana
Ampelopsis serjaniæfolinus 372	Daphne Genkwa
Asperula azurea setosa	Delphinium Triomphe de Pontoise 346
Aerides Thibautianum	Dendrobium Bullerianum 284
Agave Schidigera	Dendrobium capillipes 373
Agave xylonacantha	Dendrobium Charltonii
Amaryllis	Dendrobium macrophyllum 218
Amaryllis pardina 217	Dendrobium pycnostachyum 30
Angræcum citratum 91	Desmodium penduliflorum 346
Anthurium pedatifidum 347	Dodecatheon Jeffreyi
Anthurium reflexum	Draba violacea
Aquilegia Pyreniaca	Dombeya angulata
	Dracæna surculosa
Aristolochia tricaudata	Epidendrum amethystinum 372
	Epidendrum brassavolæ
Aucuba Japonica grandidentata maculata	Epidendrum Cooperianum 252
maculata 346 Azalea, Her Majesty 346	Epidendrum cremidophorum 284
Azalea Indica François Devos 187	Epidendrum dichromum. 29
Barleria Gibsoni	Enidendrum ehurneum 157, 372
Barleria Gibsoni 91 Begonia Veitchii 317	Erodium macradenium
Begonia Boliviensis	Eupatorium riparium
Billbergia sphacelata	Epidendrum sophronites 373
Bletia hyacinthina albo-striata 347	Epimedium alpinum, var. rubrum. 374
Bletia Sherrattiana	Eucodonia nægelioides
Bolbophyllum Siamense 373	Ficus Suringarii
Bossiæ Hendersoni	Fittonia argyroneura
Boweia volubilis	Gladiolus, garden varieties 126
Cælogyne biflora	Citationas, Standen Varioties
Cælogyne lagenaria	Gloxinia hypocrytiflora 252 Glyphæa Monteiroi 29
Camellia Angelo Cocchi	Goodyera macrantha
Camellia Carlotta Polosa	1170
	Goodyera velutina 373 Gomphia theophrasta 157
	Gonatostemon Borcheanum 372
	Grias cauliflora 123
	Griffinia Blumenavia317, 347 Griffinia hyacinthina maxima 372
	Carried Lay to Carrotte Interest Control of the Con
Cattleya Dowiana	Trendithenium ocymoraes
	220210021110
	Heliotropium convolvulaceum 155 Hemerocallis fulva kwanso 347
	Hemerocallis Middendorfi 347
	Hydrangea paniculata floribunda 347
Colax jugosus 317 Cotoneaster Fontanesi 347	
	Hydrangea pamculata grandiflora 373 Hydrangea Japonica macrosepala 347
Corysanthes picta 346	. II Jarangea vaponica macrosepata 02.

	PAGE		PAGE
Impatiens latifolia	91	Peperomia arifolia	124
Ipomæa Gerrardi	252	Phajus inquilinus	346
Iris Kæmpferi	347	Phajus irroratus	347
Lælia majalis	374	Platycrater arguta	372
Lamprococcus Weilbachii34		Pleroma sarmentosa	124
Larix Kæmpferi	124	· Pleurothallis Saundersiana	29
-Lilium hæmatochroum	126	Prostanthera nivea	284
Lomaria ciliata	30	Lælia Pilcheri	373
Lomaria dura	30		61
		Rhaphia tædigera	OT
Lomaria Lechleri	30	Rhododendron marginato-puncta-	104
- Magnolia Lennei	373	tum	124
Maranta rosea picta	373	Rondeletia Purdiei	374
Maranta illustris		Rudgea macrophylla	252
Maranta roseo-picta		Saccolabium curvifolium	91
Miltonia rosea	318	Saccolabium giganteum	346
Myosotis semperflorens	91	Sarcanthus erinaceus	124
Myrtus Cheken	187	Sedum Maximowiczii	372
Nanones medusæ	346	Sedum maximum versicolor	373
Nasonia cinnabarina	372	Sedum Japonicum	372
Nidularium Laurentii	372	Siphocampylus fulgens	346
Notylia bicolor	29	Siphocampylus Humboldtianus	124
Odontoglossum astranthum	346	Smilax longifolia variegata	284
Odontoglossum crocatum		Spiranthes margaritifera	29
Odontoglossum Dawsonianum		Stanhopea saccata	29
Odontoglossum nebulosum	373	Stemonacanthus Pearcei	217
Odontoglossum nebulosum can-			91
		Strawberry, Perpetual Pine	124
didum		Synadenium Grantii	
Odontoglossum roseum	372	Tacsonia Buchanani	284
Odontoglossum Schileperianum		Tapeinotes Carolinæ	91
Odontoglossum triumphans	346	Thunbergia fragrans	187
Oncidium holochrysum	30	Thapsia decipiens	374
Oncidium nubigenum	372	Trichocentrum albo-purpureum	30
Oncidium serratum	124	Trichocentrum cornucopiæ	30
Ophiopogon Japonicus argenteo-		Ulmus campestris	187
striatus	347	-Ulmus campestris aurea	347
Osbeckia rubicunda	30	Vanda Bensonii29	, 347
Palaver flexuosa		Viola pedata	284
Passiflora fulgens	346	Vriesia gigantea	252
- Passiflora Banksii	373	Vriesia brachystachys	347
Pavetta Hookeri	372	Weigelia Middendorffiana	91
Pear, Beurre de Fromental	91	Zea Japonica albo-vittata	373
rear, Deuric de riomentar	31	Zea sapomea amo-victata	010
EN	IGR A	VINGS.	
Adiantum cuneatum	. 171	Heliconia humilis	156
Adiantum Cunninghami		Heliotropium convolvulaceum	156
Agave Schidigera			
Pagave Schlugera	100	Hortus fenestralis130	238
Bocconia Japonica	. 108	Lastrea æmula	
Cypella cærulea	123	Lastrea filix mas., var. grandiceps	276
Dalechampia Roezliana	318	Mushrooms under greenhouse stage	208
Diagrams of Japonica	. 137	Plan of a villa kitchen-garden	200
Equisetum sylvaticum	203	Pleopeltis membranacea	82
Figures of Cuttings73,		Polystichum angulare, var. gran-	
Fruits of Aucuba		_ diceps	114
Garden design		Polystichum angulare	274
Grias cauliflora	. 123	Rockery, summer-house, and bee-	
Ground plan of rockery, Stoke		shed at Stoke Newington	4
Newington	. 5	Todea hymenophylloides	28
Helianthemum	124	Woodwardia radicans	34





ROCKERY, SUMMER-HOUSE, AND DIE SHED AT STOKE NEWINGTON.

THE FLORAL WORLD

AND

GARDEN GUIDE.

JANUARY, 1867.

DESCRIPTION OF A ROCKERY AT STOKE NEWINGTON.

HE casual notice of my rockery which occurred in an article on the Bracken in the Floral World of October last, has brought many inquiries for detailed information as to its appearance, structure, and uses. In order to comply in a way likely to be useful, I have

had a perspective view and a ground plan prepared, and herewith present them to our readers. Though a distinct and pleasing feature of my very small garden, it is but proper to state that it was originally constructed solely as a screen, to shut out from view the lower part of the garden, where experimental operations render privacy desirable, and where, moreover, there is nothing for people to see. The primary object of the proceeding has been fully secured. The frame ground and plunging beds are screened from inquisitive eyes, and there is less interruption of the work than was the case once upon a time. But the ruin is a real embellishment, and it affords sites for a large number of interesting and beautiful plants. One effect it produces, which is doubtless worth mention. It gives to the garden at the point where it is seen in its full extent, an appearance of expanding out to a great breadth, though it is no wider here than anywhere else. This is owing to the number of separate objects which present themselves in nearly an unbroken line right across the garden, and as they are all connected and in perfect harmony as parts of a rustic scene, the eye is pleased with the variety and the expansion which are secured by the arrangement.

This rockery consists partly of banks faced with burrs, and partly of artificial ruins. The entrance to the scene, at A, is by a walk which divides right and left, leading one way to a summerhouse at c, another way to raised banks at D, and the principal walk is also carried through the rockery, and then leads the way, B, to the lower part of the ground, which this construction hides from view. At E and F are parts of two large semicircles which abut upon the front of the rockery; at G is the bee-shed, the thatched roof of which

is a pleasing feature in the perspective view.

It will be observed that the principal part of the rockery is a sort of bastion with arches. The walk down passes through the bastion,

THE FLORAL WORLD AND GARDEN GUIDE.

and the design of the whole is perhaps a little fanciful, and would puzzle both military and civil architects, though there is really nothing at all extravagant in any of the details. The bastion was constructed with the largest burrs that could be obtained. By the term "burrs" is meant the great blocks of half vitrified brick which are thrown out of the kiln as useless to the builder. The demand for these has become so great that they are expensive articles, though but a few years since the cost of carriage was about all that was of necessity incurred in obtaining them. The walls of the bastion are filled in with earth, and for the guidance of any reader who should wish to adopt a similar contrivance, I will remark that such walls should be at least three to four feet thick, so as to enclose a large body of earth, for plants growing on such walls will occasion very much trouble in watering, etc., to keep them alive during hot weather if there is but a scanty body of soil in the walls. Of course, in the process of building, openings were left, and numerous irregularities were produced intentionally, so as to form receptacles, basket-like recesses, and chinks and hollows for plants. In order that the whole body of earth in the walls should be moistened by rain, the summits of the walls were not covered in, but were planted with various shrubs, succulents, and other plants of kinds suitable for such a position, the relative dispositions of the materials of these walls may be understood by the aid of a printer's diagram:-

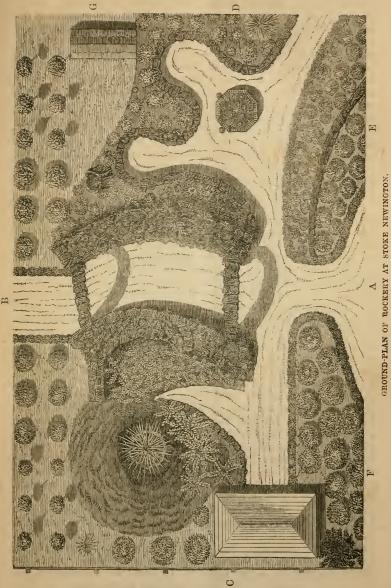
> Rock Earth Rock

in which the word "rock" stands in this case for a facing of burrs. A few "butts," as the gardeners here term the stumps of trees, have been worked in with good effect, and one of the prettiest effects is produced by a tuft of that noble grass Elymus arenarius, planted in a large butt on the left, near the grass the grass the grant have a few and the grant have a few a

in a large butt on the left, near the summer-house.

The banks on either side of the walls are raised from two to five feet high, and the walks are planted with Sagina procumbens in the bays and recesses, because gravel does not long preserve a sightly appearance in such places, and the Sagina forms a green moss-like growth. In a peaty or sandy soil, mosses would grow freely in such spots; but in our heavy clay land, mosses have no beauty. All the walks necessarily used are, of course, gravelled and well kept.

The summer-house is as much benefited by the rockery as the experimental ground. For as this retreat is chiefly used by myself all the summer long as a sanctum for literary work, its separation from the working department is a matter of great importance, and I enjoy the immense advantage of writing in the garden, and being at hand to direct the work, and also to see the subjects it may be my business to describe. I might speak also of the service rendered by the rockery in screening the bee-shed from the upper end of the garden; the bees always sail high up over the arches and trees, and



a stranger would scarcely discover that there were bees in the place, especially if not admitted beyond the front of the rockery. And I shall now say a word as to its beauty. As I sit in the sanctum in the midst of heaps of papers, I derive immense and untiring pleasure by occasionally looking out at the ferns, and grasses, and succulent plants with which the walls and banks are studded. I cannot imagine a prettier bijou picture than is the bank D, which I have in full view as I sit at my desk. There is a great tuft of the variegated-leaved willow herb, Epilobium angustifolium, fol. var., which is exquisitely beautiful, with creamy leaves and rosy purple blossoms; several tufts of variegated grasses, the bold orbicular leaves of Saxifraga crassifolium, the grandly-striped leaves of the variegated variety of Aspidistra lurida, the silvery Artemisia argentea, and many more of such strikingly charactered plants, the boundary beyond being a fifteen-feet wall of rich green privet, which brings out the elegant lines of the grasses and the silvery and creamy lines of the variegated plants superbly.

In the nook on the left there are numerous fine examples of hardy ferns that have grown to great dimensions. This nook is quite shaded, which is not the case with the banks D, and the soil is made for ferns, and consists of Wanstead peat and loam, chopped up together. Here of course are great tufts of Lastrea Filix mas and the lovely lady-fern, Athyrium Filix famina, and the crested and tasselled varieties of both. Also fine patches of common polypody, Polypodium vulgare, the hart's-tongue in several forms, the beautiful Onoclea sensibilis, which is quite hardy here; and a good selection of British ferns of smaller growth. The horse-tails, such as Equisetum sylvaticum, E. arvense, and others, add a rare and exquisite charm to

the nooks in which they grow, and, as already recorded, the background of this nook consists of bracken, which has attained to a remarkable degree of luxuriance, and has a grand appearance,

towering up in front of the dark ruin.

Though on so small a scale, I might with perfect justice describe this rockery as constituting a series of three distinct gardens. First, we have on the summit and sides of the walls of the bastion numerous succulents, and a few alpines. The position is not well adapted for ferns, though we could keep them there by regular watering. It is much better, however, to plant a position so that the least possible care will be required; at all events, our rule is never to make work, there is too much of that already; so we plant things in such a way that they will, generally speaking, take care of The mesembryanthemums are invaluable for such work, and their free and abundant flowering give them a first claim to consideration for positions much exposed to sun and scantily supplied with moisture. The sunny banks on the right serve for herbaceous plants, and a few choice trees and shrubs; and on the left of the bastion is the fernery. It would be wearisome to the reader, and perhaps of but little practical service, were I to enter into any particulars as to the details of the planting, or the various failures and successes that have occurred during the seven years that have elapsed since the scheme was carried out. Several choice

ferns, such as Allosorus crispus, Asplenium ruta muraria, and others that ought to have thriven on the face of the bastion, have perished, which I attribute to their being dried up during long continued hot weather, when, probably, regular watering would have saved them. But I imagine it of the utmost importance to render this brief description useful, that I should present as complete a list as possible of the plants that have succeeded, and that are really worth the attention of persons possessing similar structures, or desiring to form collections of plants.

TREES AND SHRUBS.

Rhus cotinus.—This very distinct and beautiful shrub has a fine appearance on a bank when smothered with its brown smoke or foam-like flowers. It should be found in every belt of mixed shrubs.

Artemisia argentea, A. glacialis, A. maritima, A. siberica, A. vulgaris.—All the species of wormwoods are more or less glaucous or silvery. The first named of these forms an elegant tree, and, as it needs but little soil, is well adapted for the top of a wall, or any

other elevated position.

Hedera Algeriensis, H. Regneriensis, H. Canariensis fol. var., H. digitata, H. chrysocarpa, and H. heliv elegantissima, are the most striking half dozen varieties of ivy to train over ruins; but there are at least fifty more varieties of ivy worthy of places in rockeries and ruins. When planted so as to form distinct sheets of verdure they are much more effective than when allowed to riot over the walls and arches. But in some parts of a ruin a luxurious growth of ivy is desirable; it is the one plant in all the world that can best crown a buttress with befitting glory. Common Irish and common English are the two best sorts wherewith to form extensive sheets and bold bosses where there is plenty of room for them.

Lonicera brachypoda reticulata.—This charming honeysuckle is well adapted to train over rough walls, but it will not train itself as ivy does, and the best way to help it is to place stout galvanized iron wire where the creeper is required and it will twine round it. When it reaches the summit of a ruin and falls over in trailing wreaths, it flowers freely, but, like ivy, is reluctant to flower while it has oppor-

tunities for extending itself.

Jasminum nudiflorum.—An old plant of this jasmine clothing a wall or scrambling over a rocky ledge is a fine object in winter when

it is covered with yellow flowers.

Rosmarinus officinalis fol. var., Ruta graveolens fol. var., Santolina rosmarinifolia.—Here are three British plants that are admirably adapted for planting high up on exposed dry ledges and other places where moisture-loving shrubs would soon perish. On the summit

of the bastion these are both ornamental and interesting.

Vitis hederacea fol. var.—This exquisitely beautiful vine was planted in a pocket about five feet from the ground, and it grew freely and made long pendant garlands, which were full of grace and beauty; the stems reddish and the leaves prettily mottled green and grey.

Clematis lanuginosa, C. carulea, C. Florida, C. vitalba.—There is

no limit to the use of clematises wherever walls are to be clothed, whether such rough walls as these or the smooth walls of a mansion. A few of them planted in a rich mellow soil at the foot of the bastion have grown and flowered finely. I find the only way to train them

neatly is to nail them as required.

Caraganas of several varieties, the peculiar and pretty Halimodendron argentea, the very distinct and elegant Kolreuteria paniculata, are, among many trees adapted for the embellishment of such scenes, worth especial attention. All rockeries and ruins should be to some extent shaded with trees, not only because the shade is desirable, but because the trees add to the dignity of the scene, and to some extent heighten its reality, for there is nothing sham about them however veneered the ruin may be.

HERBACEOUS PLANTS.

FLOWERING PLANTS especially adapted for sunny banks and borders, and elevated positions. Those requiring very little soil marked thus, *. - Achillea millefolia rosea, A. Egyptiaca, A. filipendula, Agrostemma coronaria, Alyssum saxatile, large patches of this are glorious in spring; it likes a good depth of soil and a sunny position. To grow it to perfection, give it a mixture of loam, coarse pebbly sand, and broken limestone; but it grows well in almost any soil if not damp or shaded. Anemone Japonica, A. nemorosa, this may be in the shade; it is a lovely plant in spring. Aquilegia Skinneri, A. cœrulea, A. glandulosa, A. spectabilis, all lovely, and take care of themselves, and will flower freely whether in shade or sunshine. Antirrhinum majus,* invaluable for exposed situations. Arabis albida,* A. lucida, admirable to form large sheets in the front of banks. Asperula odorata, Aubrietia deltoidea, Betonica grandiflora, Campanula carpatica, C. alpina, C. garganica, this last was planted in a pocket in the face of the wall, and grew splendidly, forming a sort of blue beard as it hung down in a sheet, and was almost always in flower. C. persicifolia, this grows here four or five feet high, and has a fine appearance. Many more campanulas may be added. Cheiranthus alpinus,* who could ignore the wallflower in the decoration of a ruin? Convallaria polygonata, this is the Solomon's seal, a glorious plant for shady places, and it will grow in the worst soil ever seen or heard of. Dielytra spectabilis, Dondia epipactis, this requires heat, and will do in a shady place with ferns. I value it much for its greenish yellow flowers in early spring; every lover of choice things should have it. Dioscorea batatus, this is the "Chinese yam;" it is a most elegant climber to plant among roots of trees. Erythræa centaurium, this almost unknown gem is one of the prettiest of British plants. I have frequently brought home a few dozen tufts of it from the Surrey hills, and now I see it in Messrs. E. G. Henderson and Son's Herbaceous List; they deserve a testimonial (in gold or diamonds) for introducing it as a nursery plant. Funkia grandiflora, F. lanceafolia, Galeobdolon luteum, Geranium Lancastriense, G. anemonæfolium, G. sanguineum, Gypsophila acutifolia, Hepatica angulosa, Iberis corifolia, I. saxatile, I. Gibraltica, my plants of these measure four or five feet over, and when in bloom

are truly wonderful; yet how seldom are those hardy white flowering plants seen in gardens! Lathyrus latifolius, superb to train up over walls and arches in the full sun. Linaria cymbalaria,* get a bit of this to live on the front of a rough wall, and in due time it will spread and become a feature in a garden, simple in the extreme and lovely beyond description, and capable of taking care of itself with the mere shadow of soil to live in. Lysimachia nummularia, this requires a body of soil, and is a gem amongst roots of trees. Enothera riparia, this is a gem to plant amongst roots. Phlox alpinus, a little gem for a ledge of rock, with a body of sandy soil to root in. Potentilla fragariastrum, Primula acaulis, P. auricula, P. farinosa, Pulmonaria Virginica, Ranunculus alpestris, Saponaria ocymoides, slugs are very fond of this, but it is a rare beauty. Saxifraga oppositifolia, S. pulchella, S. geranoides, S. cordifolia, S. hypnoides, S. Icelandica, Silene acaulis, S. alpestris, S. petræa, Spiræa filipendula, Statice latifolia, S. bellidifolia, Thymus azureus,* T. lanuginosa, T. officinalis, these are growing here in the face of the bastion, forming large mats of beautiful vegetation. Trifolium incarnatum, Veronica spicata, V. saxatile, Vinca major, and V. minor, Viola montana, V. cornuta; the last are two gems for rockery banks.

Variedated-leaved Plants.—Ajuga reptans fol. var., Arabis alpina fol. var., A. lurida fol. var., Aira cæspitosa fol. var., ** Aspidistra lurida fol. var., Aubrietia deltoidea fol. var., Phalaris elegantissima, ** strange to say, this moisture-loving grass grows freely on the top of the bastion, but much more luxuriantly on one of the sunny banks. Mr. Salter has a rosy-tinted variety of it. Cerastium tomentosum and C. Biebersteini, Cineraria maritima, Epilobium hirsutum fol. var., Festuca glauca, ** Fuchsia gracilis fol. var., Funkia ovata, F. Sieboldii, Pulmonaria grandiflora fol. var., Spirea ulmaria fol. var., Trifolium repens fol. var., T. rubrum pictum, Tussilago farfara fol. var., ** Vinca major fol. elegantissa, V. major fol. reticulata, V. minor fol. var.

argentea.

Succulents.—Sempervirum tectorum, * S. Californica, * S. arachnoides,* S. montanum.* A dozen more may be added, but these four are pre-eminently useful. Sedum acre, S. glauca, S. anacampseros, S. Fabarium, S. Kamtschaticum, S. Sieboldii, this is quite hardy, but the weather and the vermin usually spoil it when out of doors. The Sedums like a moderate depth of soil, and though essentially rock and wall plants, will not thrive on the pittance that suffices for Sempervivums. Umbilicus horizontalis,* this pretty plant requires a nice deep pocket, containing about a peck of sandy peat, and occasional watering in dry weather, but in other respects the more fully it is exposed the more finely will it grow. Mesembryanthemum clavellatum, M. cruciatum, M. bicolor, M. falsiforme, M. floribundum, M. glaucescens, M. inclaudens, M. maculatum, M. roseum, M. salmonitum, M. violaceum, M. umbellatum. These twelve are distinct and fine, but five or six dozen more may be added. One of the best purposes this rockery has served me was in providing sites for the display of a collection comprising 125 species, the greater part of which unfortunately have been lost through want of care. The best way to treat mesembryanthemums, when grown on ruins and other places where there is anything in the nature of a collection, is to plant them out in April, and leave them to grow as they please. In August take small cuttings of all the sorts you have, put these cuttings in threes or fours together in 60-sized pots, in soil consisting of two parts sand and grit and one part loam. Keep them through the winter in a frame or greenhouse. Do not attempt to save any of the old plants on the rockery; let them take their risk. Many of them will survive the winter, but some are sure to perish. Make good those that perish by planting from your young stock. Wherever and however mesembryanthemums are grown, the plants should

be renewed annually.

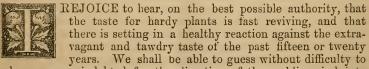
Space cannot be afforded for any further particulars of this structure. It will be observed that in the foregoing lists hundreds of plants that might be suitable for a rockery have had no mention. I have sought only to enumerate such as have been grown on the rockery figured, and there are many fine plants that I should object to introduce to such scenes, because of some stiffness of habit, or perhaps excessive showiness or coarseness of appearance, and so forth. It must never be forgotten that, amongst rocks and roots, there will always be abundance of vermin, and many fine plants are certain to be destroyed by them. We must therefore be guided in making selections by the relative degree of esteem in which the plants are held by slugs, snails, and woodlice, as by ourselves. Vigilant hunting of vermin is an essential part of the management of such constructions, but it is well also to give first preference to plants that common garden vermin do not care much about.

S. H.

THE AURICULA.

BY JOHN WALSH.

CHAPTER I .- CONSTITUTION, SOIL, AND GENERAL TREATMENT.



whom we are indebted for the direction of the public mind into more healthy channels than it has been moving in while engaged in horticultural recreations, but it is enough for us at present to help on the movement, and by all the means in our power contribute to the substitution of real beauty for mere show, of real interest of an abiding kind for the very superficial entertainment with which the age has been content in the domain of floriculture. I may hope that in 1867 an essay on the Auricula will meet with more attention than it would have done in 1857, for then the bedding mania was at its height, and the first appearance of the Floral World appears to have been attended with a brilliant success, chiefly because its

Editor came out boldly in defence of economy, taste, and simplicity in gardening, and found a genial response from many who began to feel the fashion of the day an incubus from which it was desirable to be delivered.

I am to speak of the duricula, and I shall hope to amuse those who know all about it, and instruct those who do not. But to instruct merely is not my object. I might succeed in proving (as somebody did the other day) that the letters in Dr. Cumming's name, rendered in Greek, give the number of the beast 666; but people would probably strive to forget what I had taught them, at least, I expect that sensible people would. I want to make converts. I want to create a taste for auriculas where there is none already, and I want to exalt and improve the taste where it has already dawned and needs encouraging and feeding. I want to convince our thousands of amateurs that the auricula is one of the most glorious plants that they can make a pet of; that its beauties transcendall their ordinary ideas of floral loveliness, and that it will cost them but little of either money or pains to secure good collections of these jewels of indescribable lustre. "Beauty!" you exclaim; "say prettiness, I grant they are pretty." Yes, no doubt you do, and if you had ever seen them as they ought to be seen, you would say that there are few flowers worth looking at on the same day that you have seen auriculas. Have you ever seen a first-rate collection in the perfection of flowering? Have you ever seen a thoroughly good exhibition of them? Now I have posed you; there is but one course for you to pursue, and that is to set aside all questioning of what I say, on the ground that you are not sufficiently acquainted with the subject to form a conclusive judgment on it. Look out, then, for opportunities to see auriculas in their most refined forms and resplendent paintings, and confiding in my persuasions, get together a little lot, and begin to grow them, and in due time you shall rejoice in having discovered a new pleasure, which is equivalent to having discovered a new world, and having new hours added to the round of life.

First, I shall endeavour to prove that there is nothing difficult or costly in the cultivation of the auricula. It is one of the hardiest plants in our English gardens. It is a native of the Alps; it loves fresh air, and does not flinch from frost and snow. The reason we put them in frames in winter is to shelter them from the heavy rains and driving winds, because we do not want to have their leaves torn, and cannot afford that a single truss of flowers should perish in the bud through excess of moisture. But as to hardiness, I have had them frozen root and leaf for weeks together, the whole contents of the pots like flints, and they never appeared the worse for it. Indeed, observation has taught me that some amount of frost is good for them, and the first rule for cultivation I shall offer the amateur is, don't coddle them. Bear in mind from first to last that this is a mountain flower, a brilliant of purest water, which has sparkled on the exposed icy peak, and been washed with snow water on lofty

alpine heights.

Now we come to the principal points in the routine of cultiva-

tion—the soil and the order of potting. Nobody now indulges in filthy manures for plants, so I shall not waste time in denouncing the mixtures of rank materials that were recommended by the older florists, and of whose ideas and practices Emmerton is a good example. The soil for the auricula must be sweet and mellow. Experience has taught me to prepare every year materials for future use in order to keep them till of a suitable age. Composts for certain subjects improve with age up to a certain point, and after that point is reached, time ceases to be an improver and becomes a destroyer. Therefore the compost heaps should be prepared in succession, and treated in the same order. Let us begin then with cow-dung rotted to powder, when it has the appearance of black mould. A heap laid up to rot, will require three years to reduce it to this condition. The only other materials required are sound yellow loam, clean and quite rotted leaf-soil, and silver sand free from the brown stones which indicate the presence of iron. To one bushel of rotted cow-dung add one peck of loam, one peck of leafsoil, and a half-peck of silver sand. Mix well together and break all lumps, but do not sift the mixture. You now have a compost that will grow the auricula to perfection. It is an admirable plan to rot all the materials required for composts under cover, for it is quite certain that long-continued rains wash much of the goodness out of them. But it cannot always be done, so I advise making ridge-like heaps and thatching them with turf-sods, as the next best plan to keeping the materials under cover. When the compost is prepared, keeping under cover is imperatively necessary; it will soon be worthless if exposed to heavy rains.

There is an interesting question lately mooted as to the best time to re-pot auriculas. The most experienced cultivators differ in opinion on this question, but there can be no doubt the longestablished system of potting in autumn is the safest and the most likely to promote a fine spring bloom. Mr. Headley has practised potting in spring with great success; indeed Mr. Headley grows this flower as well as any that he has ever taken in hand, and his success as a florist is too well known to need a panegyric. In the event of the autumn potting being postponed to a late period of the year, through circumstances beyond the control of the cultivator, spring potting may be practised on the plan "better late than never." I have seen trusses every way equal to the average best, and which were well placed at shows, on plants that were re-potted in the month of March immediately preceding; nevertheless, the best trusses at shows are as a rule on plants that were potted in autumn, and I give my vote unhesitatingly for potting at the end of July or beginning of August, for then the plants have fully rested, and are just rousing themselves into action again. It is rather an interesting fact, that since spring potting came to be adopted by a few good growers, autumn blooms have been very prevalent. If it can be proved that there is any connection between the two, then we derive a powerful argument in favour of autumn potting, for it is just the most likely of all influences to prevent autumn blooming, and promote a vigorous bloom in the season proper for auriculas.

The process of potting should be performed with care. Remember that a lodgment of water about the roots is ruin to this plant. In its native position it grows on rocky ledges, where water cannot lodge. The soil in which it thrives is that which consists of rocky debris mixed with decayed moss and herbage, and it is constantly bathed with snow water warmed by the sunshine of the mountains, where it shines with a lustre unknown in the plains. Large pots are injurious; four-inch pots will suit nine-tenths of all the plants you have. Six-inch pots are the largest you dare allow for the largest plant you have. Place over the hole in the pot a sound oyster-shell, hollow side downwards. Next put in a few small nodules and potsherds of the size of beans or less; next a few scraps of vegetable fibre, such as moss or bits of turf. Now fill the pot half full with compost, and press it in firmly. Turn out the plant and examine the root, removing any offsets that may be formed, and taking care to cut clean out with a sharp knife any portion of the root that is tainted with decay. Get rid of nearly all the old soil, but do not destroy the roots needlessly; in fact, keep as many as you can. Any wounds that have been made must be dressed with charcoal dust, which will stop the bleeding, and prevent decay. The last thing to do is to examine the leaves and remove the green-fly, if any. The plant must now be placed in its proper position, and the pot must be filled up nearly to the edge rather firmly with compost. Give a little water, and the work is done.

The next business is to make the best possible use of the offsets, for by these alone are the varieties multiplied. There is no difficulty in raising seedlings, but to increase named varieties, the only certain method is by offsets, and some kinds will not make a single offset in two or three seasons. We shall have to discuss some points arising out of this important matter, but for the present I will be content to say that the offsets had best be potted in five-inch pots, four or five of them in each pot, and all being placed so as to touch the pot; being placed close to the edge all round on purpose. The soil to be used for this potting should consist of loam, leaf-mould,

and silver-sand equal parts, without any manure.

The watering must be regulated by the weather, and the state of the plants. In winter they grow but little, and require only as much water as will keep them plump. They must never be dust-dry, not even in frosty weather; and if becoming over dry it will do them no harm at all to administer water during frost. But unless they really want it do not give it. When they begin to grow in February, they must be top-dressed. First remove about half an inch of soil from the pot, and fill up with a mixture of one half decayed sheep-droppings and the other half clean leaf-mould: press this in firmly, and give water to complete the task. Always use rain water if possible; but where it cannot be had, make it a practice to put two or three drops of hartshorn into every can of water drawn for auriculas.

In every stage of growth care must be taken to prevent lodgments of water in the hearts of the plants. In fact, stagnant water is death to them at any season and under any circumstances; to prevent accidents let common care and prudence be exercised, nothing

more is required.

Though the plant is one of the hardiest in our gardens, I am no advocate for exposing it at any time to the full influence of the weather in this climate. One good heavy rain may induce canker in the greater part of a collection, and in dry weather our atmosphere is too arid for them, whereas when in frames there is always a certain degree of atmospheric humidity to assist them. I advise, therefore, to keep them in frames the whole year round, giving always plenty of air; they are then fully under our control, and if we are wise and watchful we shall have no losses. Mr. Hibberd, in his "Garden Favourites," has recommended putting them out on a hard bottom immediately after blooming; I should like to know if he follows that plan still, and if he has the same amount of confidence in it as ever. So careful a cultivator must, I am sure, see the superiority of the covered system of treating these plants, provided it is followed out with every other needful consideration for their welfare.

SUB-TROPICAL PLANTS THAT MAY BE GROWN FROM SEEDS.

BY KARL PROSPER.

ONTINUING my notes for "The Choice Garden," I would now direct attention to the surest and simplest way of raising a number of the most remarkable plants of those kinds which in England are termed "sub-tropicals," which do indeed come from warmer climates, and which

are valued for their noble characters and great distinctness from everything that we possess amongst old-fashioned plants. The English gardeners give to Mr. Gibson, of Battersea Park, great praise for the admirable series of experiments he has conducted during several years past, to test the possibilities of the English climate in the out-door cultivation of such subjects as the indiarubber tree, the brilliant Erythrina crista-galli, the Aralia papyrifera, and A. Sieboldii, the Solanum of many species, the palms, ferns, and grasses of the comparativelytemperate parts bordering on the tropics. I have seen Mr. Gibson's work, and I must say that in the latter part of the summer the "sub-tropical garden" at Battersea Park presents such a gorgeous spectacle as there is nothing else to equal in all the great gardens I have visited since I have resided in this country, and I should add that I have seen nearly all the celebrated gardens both here and on the Continent. And because I have seen I will make bold to say that the French are the real authors of this practice. The French have elaborated the system, and Paris has been annually the scene of such wonderful displays of luxuriant vegetation of kinds very distinct from the established round of greenhouse and stove plants, that

I will say that we should never name this subject without giving the gardeners of Paris their full due. I could say something more about English practices that originated in France, and were simply imported, but it is enough now that I should remind the reader that this practice is not English born, though the English have had to adapt it to their climate and other circumstances.

One of the most important families from which to select plants remarkable for their fine foliage is the Solanum. Here we have huge palmate, bold angled, densely pubescent leaves, variously coloured with silvery or rosy veins, with silvery or purple stalks, the plants presenting magnificent outlines, and rendering a wonderful diversification of the ordinary aspects of the English flower garden. The seeds of the Solanums should be sown in heat in January, and should be grown on under glass till June, and then be planted out for the season. It is best, as a rule, to allow them to perish in the beds, and raise a fresh supply from seeds, for they are not worth taking up for the winter.

SOLANUMS.

S. giganteum, a shrubby species, with spinous leaves, and much silvery tomentum on the under side. Grows well in the open ground, and if grown freely in the early part of the season it bears scarlet berries.

S. auriculatum.—A strong-growing shrub, with large, handsome leaves and violet flowers, which are scarcely perceptible. It grows freely, and is highly ornamental.

S. marginatum.—A splendid species, the young leaves of which are quite frosted; when older the leaves are greenish white. When

planted in a mass it is peculiarly rich and pleasing.

S. amazonicum.—A fine species of rather small growth, the leaves bronzed on the upper side, and silvery on the under side. The flowers are large and handsome, and are abundantly produced in the open air.

S. robustum.—This is unquestionably the finest of all; the leaves are large, and quite covered with cinnamon brown spines. A single plant makes a good show in a mixed bed or border, but clumps of

half a dozen each have the best effect.

S. pyracantha.—Very elegant pinnate leaves with orange-coloured midrib, and fiery red spines. The flowers are bright blue. It grows well when planted out, and is one of the most striking of

sub-tropical plants in cultivation.

I select the foregoing six as likely to suffice for the majority of amateurs, and they can all be raised from seed easily procurable from any first-class seedsman. The seeds should be sown two inches apart, in shallow pans filled with a mixture consisting of equal parts light loam and leaf-mould, with some slight addition of silver sand to keep the soil porous. The seed pans must be placed in a steady heat of 70°, and the soil be kept moderately moist. When the plants appear, give water cautiously to prevent any excess, and occasionally sprinkle on the soil amongst them a pinch of quite dry silver sand. When they begin to grow freely, regular watering and

keeping near the glass will be all they will require, until they begin to crowd one another, when they must be potted singly into four-inch pots in a mixture of equal parts loam, leaf-mould, and quite rotten manure. Grow them until the middle of May, then gradually harden them in frames, and plant out in the first week in June.

NICOTIANA.

N. Wigandioides.—This is the finest of all the species of tobacco grown in our gardens, attaining the height of six to ten feet, with leaves over two feet long and one foot wide. The young leaves are beautifully silvered; the flowers are dull dirty white.

N. glauca.—A grand tree form of tobacco, and a very striking object when planted out in a mixed border, or as a single tree on a lawn. The leaves are highly glaucous, and the flowers of a greenish

yellow colour. It requires a deep rich soil.

N. Havanensis.—This is the true Havannah tobacco, and may be interesting to many cultivators, but it is less ornamental than the two previously described. The whole plant is downy and sticky; the flowers are rose colour.

N. Marylandica.—A fine strong-growing kind, handsome and

effective, with bright rosy flowers.

There are many species of tobacco in cultivation, and the favourite for many years has been N. Virginiana. This certainly is well worth a place in the garden, and is especially well adapted for planting on banks and rockeries. But I have named four especially because of their noble characters and the possibility of growing them in the open ground has but lately been proved. These need not be sown till the first week in February, and they require less heat than advised for the Solanums; 60° will be sufficient for the seed pans. But if it is desired to have fine examples for planting, and there are conveniences for growing them on to some size under glass, they may be sown at once in the same manner as advised for the Solanums.

CANNAS.

These noble plants deserve all the popularity they have acquired. They are particularly well adapted for sheltered spots, because if exposed to wind their leaves are torn. Here we have forms that are truly tropical, and colours rich and deep, such as scarcely any other plants present us either in leaf or flower. A rich deep soil is essential to their well doing, and they may have water in any quantity from the middle of June to the middle of August. They make a good effect if mixed with gladioli, for these last are deficient of leafage which the cannas compensate admirably. The seeds should be sown early in the year, and be placed in a heat of 70° to 80°. Some growers plunge them in water at 150° or higher for about twenty-four hours, but I have always succeeded in getting the seed to germinate without putting myself to so much trouble. It is much easier for amateurs to raise them from seed than to multiply them by offsets. The latter should be separated in April and be carefully potted in light sandy soil, and be placed on a heat of 70° to start

them. Shade them at first, but by degrees give them more and more air and have them strong to plant out in June.

C. Annei.—Leaves green and glaucous, flowers orange yellow;

one of the best.

C. Peruviana.—Green leaves and purple base, gigantic growth, commonly attaining a height of seven feet. Flowers, scarlet rose. One of the best both in respect of leaves and flowers.

C. musæfolia hybrida.—Leaves green, of great breadth; flowers

scarlet. A most noble habited and free-growing variety.

C. limbata.—The hardiest of the green-leaved section, grows six or more feet high, flowers scarlet and yellow. A large bed of this has been left out five successive winters at Battersea Park. The bed is covered during winter with two feet depth of straw. Every amateur who grows Cannas should have it.

C. floribunda.—A beautiful dwarf green-leaved kind, growing only two and a half feet high, flowers deep rose colour. This makes

a beautiful edging to beds filled with the larger kinds.

C. nigrescens.—Purple leaved and the darkest of all, flowers pur-

plish red. A grand variety for contrast.

C. Liervalli.—Purple leaves and purple scarlet flowers. Most

magnificent.

C. zebrina.—A hardy purple leaved variety, flowers vivid rose colour. This may be left out all winter if covered with straw, and is a good companion plant to C. limbata.

C. Warscewiczii.—Purple leaves and red flowers; the plant grows two and a half feet high, and is a good companion to C. floribunda,

for edgings to large masses.

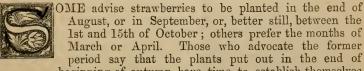
C. metallica.—Purple leaves which are finely veined, flowers

scarlet. A truly grand variety.

Unless the amateur have a most intensified love of Cannas, the above will fully suffice, and they are the best out of some hundreds that I have seen and grown both here and on the Continent.

ON PLANTING STRAWBERRIES.

BY J. DE JONGHE.



summer or beginning of autumn have time to establish themselves in the soil before winter, and to gain sufficient strength to bear a crop in the following summer. This reasoning, it must be admitted, appears plausible. The success of plantations made at this season depends, however, in a great measure, on the soil being well worked, and in proper condition as regards moisture; on the plants being sufficiently strong and furnished with good roots, and on their being carefully transplanted. I agree with the opinion of those who

prefer spring planting. For more than a quarter of a century I have planted at all seasons, but the spring plantations have always proved the best. The cause of this success lies in the following facts.

The plants established round the stools since last summer, without being detached from their parent plant, will be found much stronger after winter than those that have been separated before winter, either for planting out in nursing beds, or at once in the plantation. When carefully taken up with all their fibres in spring, they soon take root, and grow vigorously in well-prepared newlydug ground; and in June or July they produce as much fruit as those that have been detached in a young state and planted before winter.

On taking up some young strawberry plants it will be observed that the very slender fibrous roots extend obliquely in the soil in all directions round the parent plant. From this fact the cultivator should infer that in transplanting he ought to extend the roots in a similar oblique direction, covering them successively with soil up to the necks of the plants. On examining these a fortnight after, it will be found that new spongioles have been formed all along the roots, a circumstance which shows the utility of preserving all the

fibres when taking up the plants.

Every cultivator must be aware that strawberries push roots more than a foot into the ground, provided it is deep, and rendered loose and permeable by manures suitable to the nature of the soil. They extend obliquely more than a foot and a half in all directions round the plant. If they are planted so closely that the roots entangle each other in struggling to obtain nourishment, it may be easily conceived that the produce must in consequence be diminished, not only in the first, but also in the second, and more especially in the third year after planting. By some this is ascribed to the plants being exhausted; but this is an error arising from mistaking the effect for the cause. It would be more reasonable to say that the elements of nutrition in the soil become insufficient for the demand. These observations show the necessity of planting widely apart, so as to prevent the roots of strawberries and other plants from coming in contact with each other if we wish to obtain fine produce.

Those who plant exclusively with a view to crop, and to obtain the fruit in full perfection, cut off the runners in spring and summer as they are produced. The fewer runners a variety of strawberry throws out, the easier the plantation is kept in order. A variety naturally disposed to make few runners is preferred to those that produce many, if in other respects it possesses equal merit, a property which is becoming more and more appreciated by connoiseurs. The limited production of runners is considered a fault of La Constante; and this is a reproach thrown on this strawberry which is even not well founded; for if planted in good soil, neither too dry, nor too stiff, cold, and wet, it produces runners sufficiently well. A dozen young plants which were planted out in April, 1862, furnished by October 127 plants, which was at the rate of more than 1000 per cent. The circumstance of this variety not producing a superabundance of runners is considered one of its meritorious

characters by the most intelligent cultivators.

SEA-KALE: ITS CULTURE, WITH REMARKS ON FORCING IT.

BY JOHN F. M'ELROY.

HIS delicious vegetable is very tempting to the epicure, as displayed in the windows of greengrocers' shops, in the clean punnets wrapped in fine paper, at this dreary season of the year. With the old school of gardeners (such is the term used when alluding to the senior members of our fraternity, which no doubt will be repeated in succeeding ages as in the past) tradition was everything in directing or controlling their operations. Certain days were assigned for sowing or planting—as a fixed rule, such being often in connection with certain club feasts, fairs, or similar festivals. However, thanks to the advocates of education, traditional usages are fast declining, and we are guided by reason and common sense. Yet withal some of these customs still cling to us; for instance, striving to grow so as to cut a cucumber by Easter Sunday. That is where we have no other convenience beyond the old-fashion hot manure beds. Then again, that of being able to supply a dish of forced sea-kale for the family dinner on Christmas-day. Now there are various ways of forcing this vegetable. Some gardeners, where they have a good extent of ground at their command for growing vegetables, dig up the roots, place them thickly in deep rows, and cover them with just sufficient litter to ensure their being blanched as they grow; then put them in the forcing-house. Others plant them in pits or other conveniences they may have, which affords them the means of applying such warmth as they may need; but the most general practice among gardeners who are minus of all other means, is to cover the crowns as they remain on the beds, with what are termed "sea-kale pots;" in fact, any kind of pot is suitable that has sufficient depth or breadth; but the former are the most convenient, because they are provided with lids, affording greater facility for cutting and examining the sea-kale. There is also another mode resorted to, and that is to have long boxes, or troughs, constructed of three wide planks, one on each side, and the top being cut in smaller lengths, and fixed with hinges, so as to form a series of trap-doors. This kind of protection forms a continuous line along the rows. Previous to covering, clear away all decayed leaves or anything else that will harbour slugs or other destructive Then get some fine ashes, and place in and among the This will preserve them from decay to some extent, as well as counteract the evil effects of slugs or snails. The next consideration is, what is the best material for covering the pots, etc., etc., so as to excite their growth. I prefer leaves previous to Christmas rather than stable manure, not only as a matter of economy, but because I have found them to maintain their warmth for a greater length of time. Their temperature is not so easily checked by the

late cold autumn rains. In the earlier months of the year their fermenting action is assisted by the addition of some hot manure. That you may be enabled to cut a dish of sea-kale for Christmas-day by the latter method you should commence adding the fermented materials about five weeks previous. Do not put it all on at once, but add it at intervals, allowing a fortnight to elapse for the final covering; care being taken that it does not get too much heated, or the result will be long spindling stalks, instead of short, plump, tempting produce. Although it is very difficult at this season to obtain those thick, short stalks, such as we cut in the spring, it is useless to attempt to hasten their vegetation if they are not well established in the soil.

We will now proceed to consider the best plan of rearing and cultivating this root. The system pursued by myself for many years past, and which has been attended with success, is to prepare beds six or more feet in width. There must be a trench cut on either side sufficient to give a natural drainage to the bed, the soil from the trench being added to the bed, thus giving it an elevated position above the common level of the garden. I prefer a light sandy or porous soil to one of a more adhesive texture, although I have cut remarkably fine sea-kale from plants growing in a clayey soil. Having finished the preparation of the bed, I sow the seed in very wide drills, about two feet apart, during the first fortnight in March. As birds, especially the thrush and blackbird, are very destructive to the seedlings as soon as they appear above ground, every precaution should be used to guard against their depredations. When they are strong enough, thin them, leaving them in patches of five plants, the said patches corresponding in distance with the width of the rows, or you may leave them growing the whole length of the row, or in such way as you may deem expedient for your future culture. By using the hoe frequently during the summer among them, so as to destroy weeds, and keep the surface soil stirred, and placing some dry litter over their crowns before they have shown signs of growing in the spring, I have cut as fine a head of kale as could possibly be desired in the latter part of April and beginning of May of the succeeding year of their being sown. By adopting the above plan, and sowing a bed every year, you may always ensure vigorous plants. In cutting the heads for table always cut them off level with the surface of the soil. This mode of operation is a great preventive of canker, and it also keeps the crown dwarf and compact.

CULTURE OF THE CHRYSANTHEMUM IN POTS FOR EXHIBITION.

BY ROBERT OUBRIDGE OF STOKE NEWINGTON.

N the cultivation and propagation of large-flowered varieties as specimen plants on single stems in eleveninch pots for exhibition, my practice is as follows:—

As soon in November as suckers are sufficiently

strong, I select the one which is most vigorous from a healthy plant, and remove all eyes with a sharp knife so as to prevent the plants from producing suckers till they have completed their flowering season. I then insert in a three-inch pot each sucker singly, using the following compost:—A little rotten dung and some nice mellow loam, with a good sprinkling of sharp silver sand, draining the pots with small clean crocks. They are then

placed in a cold frame or on the shelf of a greenhouse, where no

cold draughts can affect them while rooting.

If in the latter part of December you find that they are becoming established, admit plenty of air when the weather is mild, in order to prevent weakly growth, and thus cause the plants to be short-jointed. In January choose the strongest of those plants that are well rooted, and pot them into large sized or five-inch pots in the compost just mentioned, and encourage growth as much as the season will permit, but take care that the vigour and sturdiness of the plant are in proportion to its growth. One point in growing plants for exhibition I would impress upon beginners, and that is, do not subject them to bottom or top-heat with the view of pushing on their growth; if frost is just excluded that is enough. By the middle of February, if all has gone on well, the plants will be sufficiently strong to be stopped; the number of breaks or shoots you desire to insure must depend on the vigour of your plants (and here the operator must use his own judgment), but I would advise from six to seven eyes to be left; should more be allowed to remain the chances are that the lower eyes will not emit shoots, or if they do they will break weakly. Remember that in proportion to the attention bestowed on training in the earlier stages of growth, so will be the result as regards future growth and perfection of flowers. Some varieties of chrysanthemum differ from others in constitution, a knowledge of which can only be acquired by close observation; some, for instance, will bear several degrees of frost with impunity, while others will not stand frost at all. The wisest plan is, however, not to subject them to it. When giving air observe the quarter from which the wind blows, as an easterly or northeasterly wind, if allowed to have free access to the plants, will prove injurious.

If in March you find that the plants have emitted shoots freely from all the eyes you left at the period of stopping, you may at once repot them into 32-size pots, but do not do so unless they have pushed shoots regularly from every eye; sometimes the lower eyes

will not break so early as the upper ones, therefore in order to induce a uniform emission of shoots, have recourse to the simple plan of gently bending the heads of the stem downwards, fixing it in that position by means of a peg, returning it to its original position as soon as your object is attained. The plants will require the protection of glass till the middle of May, but remove the lights on all favourable occasions previous to that time, or you will not insure robust growth, and no after treatment will make up for this neglect. In potting at this season use a small quantity of mellow cow-dung, but as worms generate abundantly in this manure they should be carefully picked out before incorporating it with the rest of the compost. Should mildew make its appearance slightly dust with powdered sulphur. Green-fly should also be watched for; it feeds greedily on the new or sappy portion of the wood, and sadly cripples the progress of the plants if not speedily destroyed by fumigating with tobacco.

In April, if previous directions have been attended to, the plants will be assuming a bushy habit and daily exciting interest. The way in which they are to be trained must therefore now engage attention; for on this no mean portion of the beauty of a specimen depends, and in order that you may the better preserve your plants in good condition. As regards foliage, do not let them suffer from drought, but on the other hand do not water too copiously; both extremes soon change the colour of the foliage from green to yellow, and decayed leaves are the result. In training for the first fix a stick in the main stem; to this loop your side shoots, and then proceed to bend some of them down to the edge of the pot; this had better be done gradually at two or three different times, as they require to be tenderly handled, the young wood at this stage being brittle and apt to snap. When you have completed this operation, and your plants are thoroughly rooted in the pots they now occupy, you may stop all or such shoots as you may consider to require it; the length at which they are to be left must be in proportion to their strength. Do not let the plants be cramped for want of top-room, or they will become spindling and long-jointed. On fine mornings they may now be syringed with clean water; this will free the foliage from any dirt that may have settled on; but take care that your plants are perfectly dry before you shut them up for the night, for fear frost should find its way to them.

As soon in May as you discover the break caused by the last stopping, shift into eight-inch pots, selecting for the purpose the healthiest and strongest of your plants. For this potting let your soil consist of as much turfy loam as possible; mix it with the formerly-mentioned ingredients, also pound a quantity of oyster shells and mix them with the soil; they will assist in keeping it porous, and supply food to the plants, as they contain a good deal of the superphosphate of lime; likewise use a little charcoal in your drainage—it helps to preserve the foliage in a healthy green state. After potting, if the weather will permit, you may move the plants from under glass to a sheltered spot in the garden; towards the latter end of the month shift them to a more exposed situation; but

in doing this be sure you place a slate or something of the kind under the pots to prevent worms from entering it; for should they gain admission they would destroy the activity of the soil by elog-

ging up the drainage.

In June, the plants, if properly treated, will be growing fast; stop them again if their strength will allow of it; place them at such a distance apart as will admit of a free circulation of air all round them; keep them constantly turned so as to prevent onesidedness of growth; I aim at training the plants in the form of a pyramid. As June is generally a very hot month, drop the pots in which the plants are growing into one a size larger; that will check the rapid evaporation which otherwise would take place from the The chrysanthemum being a gross feeder and fond of plenty of moisture, on no account let it suffer for want of it, or else you will mar the beauty of your plants; in very hot weather let the ground round them be watered with a fine rose, by which means a genial moisture will ascend and refresh the plants. You may also syringe them night and morning, which will prevent the attack of thrip; attend as hitherto to training, in order to prevent the shoots from becoming overcrowded.

The month of July having arrived, finally shift into eleven-inch pots; use a small quantity of sharp sandy grit with the soil this time, and add also strong rich manure with other stimulants that may afford a vigorous growth. When the plants have been some time inured to their final shift, and the roots begun to expose themselves on the surface of the pots, supply manure water. During the hot season I use cow manure for mixing with the water on account of its cooling and nourishing properties; and in autumn sheep's dung and soot, which possess very stimulating powers, producing, when used judiciously, healthy and beautifully robust growth.

August.—This is generally a very hot month. Take care the plants do not flag for want of water, examine them twice a day at least; also attend to the training of the shoots to prevent crowding.

September.—This month is more favourable to the generation of sap than any month of the year, on account of the warm humid atmosphere which prevails; and that growth made at this may be encouraged, supply the plants liberally with manure-water as pre-

viously recommended.

It will now be time to select the late-flowering varieties and place them under a south wall, as that will forward their flowering. But look sharply after earwigs, which now make their appearance and commence the work of destruction among the points of the shoots: use every means in your power for their extirpation: you will best discover them after dark by searching for them with a lighted candle or bull's-eye lantern. When the flower-buds appear only let each lateral shoot mature a well-formed bud; remove the remainder. If the early-flowering sorts are likely to be too forward, do not place them under glass till the weather compels you, but form a temporary shelter for them from slight frost and rain. It should not be a south aspect.

SPRING FLOWERS FOR WINDOWS, GREENHOUSES, AND CHOICE FLOWER BEDS.



T is satisfactory to notice what a growing taste there is in London for exterior window-gardening; in fact, no one can pass through the most fashionable districts of the great metropolis, with his eyes alive to note what of horticultural interest meets the line of sight, without being struck with the rapidly-developing taste for ornamental window-boxes

of the newest and choicest designs. To keep these gay and attractive is a very easy matter during the summer months, but to attain this much-desired result during the winter and spring months is not so easy, if a judgment be drawn from what is easily to be observed. A dreary-looking and stunted Aucuba or two, or a Box plant in a like flourishing condition, unable to draw any subsistence from the dry and ofttimes starved soil about their roots, literally to them

" a wretched land,
That yields them no supplies."

for frequently water is supposed not to be needed during the winter and early spring

months, albeit a rapid evaporation is constantly taking place.

Sometimes a result not much more valuable is attained by filling the boxes early in March, when nipping and husky east winds prevail, with spring-flowering bulbs from the forcing house. The consequence can easily be surmised—blighted plants, attenuated flowers, and a thorough disappointment. In one fashionable square I saw, in March of the present year, the tenants of three or four boxes in just such a pitiable plight; rude winds have no sympathy with or mercy for weakly constitu-

tions in the department of the horticulturist.

Window boxes can be made very gay indeed in the early part of the year, provided the bulbs are planted in the boxes at the outset, and so become inured to all the vicissitudes of the uncertain early spring-time. Hyacinths, Narcissi, Tulips, Crocuses, Snowdrops, Scillas, and Aconites can be grouped together, and a long succession of bloom secured. I have always found pieces of turf, used to the depth of three inches, a capital drainage for window boxes; and on these should be placed a soil well enriched with rotted manure, and rendered friable by the use of sand. Common road-sand is easily got, and "the plants delight in it," to borrow a stock phrase

from the fat catalogues.

Plenty of bulbs should be used; they require but little root-room, and will make growth, however thickly they may be quartered together. Hyacinths and the Polyanthus Narcissi can be planted low down, almost on the turf drainage. Tulips should form a stratum above these, planted in the angles of the larger bulbs; a bigher formation can be composed of Crocuses, Scillas, Snowdrops, and Aconites. These last should be about an inch beneath the surface of the soil, and that again one inch beneath the level of the edges of the box: water freely, and finally cover the whole with a coating of coal-ashes, forming a kind of sloping roof to throw off the rain, and to serve as a protection from frost. As soon as the shoots begin to penetrate the coal-ashes, they can be removed; no rigour of weather will prevent their giving forth the beautiful flowers looked for; for (to use another stock phrase) "their well-being is less dependent upon the mysteries of the gardening art than that of almost any other class of plants in cultivation." Mysteries of the gardening art! Alas for fat catalogues, is gardening involved in mysteries? Well enough it might be, where these are appreciated.

I neither like moss nor cocoa-fibre as a covering for boxes planted in this manner. They hold too much damp. I have tried both, and fall back upon the friendly and simple coal-ashes. Plants, when used among bulbs—in a box, for instance, where crowding cannot be avoided—are often injurious to the latter, because of their retention of moisture beneath their foliage. There will be plenty of foliage from the bulbs themselves to relieve the colour of the flowers, if foliage

be required for that purpose.

Then for conservatory decoration, how easily are Tulips and the beautiful varieties of Narcissus grown! The former particularly, as they are the most showy of the spring-flowering bulbs, and can be retained in bloom for a long time. A

grower in the midland districts, famous for the display of Tulips made in the conservatory from the middle of December till May, prolongs the bloom of his flowers by carefully tying a piece of silk round each flower just as it reaches its full size, using a colour similar to that of the flowers. Plenty of manure from a spent hotbed, mixed with loam, leaf-soil, and sand, forms an excellent compost for Tulips. Three bulbs in a 32-pot are enough, space and display alike considered. Weak liquid manure, or diluted guano-water, can be advantageously administered as the flowers show colour, and till they are well developed. The plants like plenty of moisture,

Provided good drainage is secured.

Narcissi are the most accommodating things for spring use; under the most adverse circumstances they will flower. They make but little root, and are content with a small space. Yet to do them well they should be liberally treated. Varieties like Florence Nightingale, Lord Canning, and others, will produce fifteen and twenty flowers on a truss under moderately liberal treatment. They are most effective for grouping in the conservatory, and the delicious fragrance they exhale makes them the more valuable. The following varieties are fine and distinct:—Gloriosa, large pure white, with orange cup, rough on the edge, yet one of the best; Grand Primo, pale lemon, with gold cup; also the white variety of Grand Primo, with bright yellow cup, large and fine; Florence Nightingale, white, with orange cup; Bazelman Major, large white flowers, with deep gold cup, one of the best, differing from the white Grand Primo only in the deeper colour of the cup; Sulphurine, pale lemon, with gold cup; Lord Canning, lemon, with deep golden cups, larger than the foregoing; Bathurst, pure white, with bright orange cup, very good and showy; and Sir Isaac Newton, pale yellow, with deep golden cup, more showy than the majority of flowers of this ground colour. These are all well worthy cultivation.

The following twelve early single Tulips comprise the very best sorts for pot culture:—Self-colours: White Pottebakker; Prosperine, silken rose; Van Vondel, silken crimson, sometimes streaked with white, very fine; Vermillon Brillant, rich vermilion; Van der Neer, purplish violet, fine; and Yellow Prince. Edged flowers: Keizer's Kroon, bright red, edged with yellow, very fine; Rose Griseldine, rose pink and white, very fine. Striped and flaked flowers: Cramoisie Royale, rosy red and white; Roi Pepin, pure white with crimson flakes, very fine; Fabiola, rosy violet and white; and Queen Victoria, pure white, pencilled and tinged with crimson. Other sorts can also be selected from the list of kinds adapted for bedding,

given at page 1022.

Finally, plant early; some sorts keep well, others very badly. Plant not later than the end of November certainly for beds; for pots plant by the end of October or early in November.—Gardener's Chronicle.

WINTER PROPAGATION OF ROSES.

UT we are most concerned now about the autumn propagation, and I have yet a good practical note to make, and it is for the special benefit of people who cannot now make up their beds and frames of cuttings, but who mayhap December to set a few cuttings going. I have remarked above that after October, cuttings in the open ground have a lessening prospect—or, if you

after October, cuttings in the open ground have a lessening prospect—or, if you prefer the term, a vanishing perspective of success—and every day's delay will tend to diminish the total number of those that will ultimately make roots. It is a discovery on which I set some value, that if late cuttings are heeled into a bed of eocoa-nut fibre refuse in a frame or under a stage, or anywhere in the enjoyment of shelter, with a little atmospheric meisture to prevent shrivelling, they make a callus by about the end of February, and may then be potted separately, and be plunged in a cocoa-nut fibre bed in a frame, or may actually be plunged in the open ground; or they may be pushed with bottom-heat to make roots and growth at once. The rationale of this proceeding is not occult. The cocoa-nut fibre has a preservative value: it affords no encouragement to mildew, it prevents damping almost as effectually as dry peat-dust or silver-sand, provided it is only reasonably moist; it maintains a nearly uniform temperature, or, at all events, does not vary in temperature

with every variation of the surrounding atmosphere; and for some reason that I don't pretend to understand, it will coax almost any kind of cuttings or leaves to make roots; it is wonderful in that respect, though so little able to feed roots when they are formed. But no matter about the philosophy of the thing. In respect of rose cuttings it is as I say, and I commend this bit of practice to those who wish to multiply their roses in the safest and cheapest way.—Gardener's Magazine.

A BIT OF GOSSIP ON HERBACEOUS PLANTS.



BEG to tender my best thanks to the Editor of the Floral World for the publication of my list of plants in the November number, and the remarks thereto appended; and seeing that my communication somewhat clashed with an editorial notice in a former number, I must say that the course taken has been manly and straightforward, such as is

not often met with in journalism. Let me assure the Editor that the publication of the herbaceous lists in the Floral World has been duly appreciated, and before the November number had come to hand I had several letters anent the list I forwarded, and perhaps it may be as satisfactory for you to hear as it is for me to know, that my little garden is already less by some hundreds of plants than it was a short time since.

Another thing I am sure the public with myself will appreciate, is that the publishing of the list brought forward the O'Shane's whole 100 instead of the 50. I find also the O'Shane's list and my own are distinct, with the exception of about fifteen plants. So in the two lists the public have the choice of 185 plants set before them, and may I be allowed to state that both my letter and my list were written rather impulsively, and could I but spare a little time in my thinking house I could amend my list very considerably, if not make cut a new and a better 100 altogether. And now for the remarks appended to my list, for which I feel more thankful than otherwise; and as they seem of an interrogatory nature, I have much pleasure in answering them, if it is only to acknowledge defeat.

In the first place I am afraid the pretty plant, Achillea ptarmica plena has not been thoroughly comprehended, as you call it coarse and handsome. The plant is anything but coarse. Neat, deep green small foliage, abundance of double snow-white flowers, about eighteen inches or so high, hardy as a nettle, and British, but the plant is an unfortunate one for comparison, as it appears in the O'Shane's list as "Ptarmica vulgaris flore plena," it certainly must be as coarse in one place as

another.

Admitted that Spirea Japonica will do better in a frame than otherwise, but the plant is nevertheless decidedly hardy, but owing to its precocious habits, late spring frost will sometimes injure it. It is worth growing for its leaves, equal to any fern. Papaver involucrata maxima is probably a variety of P. bracteata. P. bracteata, however, seldom ripens seed with me, while involucrata seeds abundantly. However, it is a most gorgeous flower, a perfect circle of fire. The lobelias I mentioned are perfectly hardy with me, and I surely do keep them in the herbaceous border. Lobelia fulgens will sometimes die off in a very wet winter, or rather after a wet winter, when dry weather sets in. I believe the plant would live in water. The variety Victoria is more hardy and robust than the type. A plant of it was stolen from a gentleman's garden at Rainhill, which was valued at £2, and must have stood there for years. With me L. syphilitica is as hardy as a cabbage. Symphiandria pendula is a genus of De Candolle, described in "Don's Directory," vol. iii.

The spelling of *Dielytron* as *Dyclytron* may after all be erroneous. I had it as Dyclytron from one whom you have acknowledged more than once as an authority on these matters. You will probably have a line or two from him soon (1 mean Mr. Thompson, of Ipswich), and his authority was the *founder of the genus* (Boerkhausen), who founded it on dis, two, and klytron, a spur, but it appears there is no such word in the Greek as klytron.

Yucca filamentosa must certainly be an herbaceous plant; it flowers and dies down, and has in fact less timber in its composition than Iberis sempervirens, or

Alyssum saxatile. The latter plant was omitted from my 100 because the list was up before I came upon it. The variety compacts of this plant is charming. If the omission of the common sort saxatile it a cause of having the laugh turned against me, all I can say is that I have omitted better things, and can with all good humour laugh back again.

J. WILLIAMS.

Bath Lodge, Ormskirk.

HARDY HERBACEOUS PLANTS.

THE O'SHANE TO MR. WILLIAMS, OF ORMSKIRK.

ITH my final list of herbaceous plants, prepared for the "Gardener's Magazine," there certainly was more pains taken than with any selection of plants ever given in the literature of horticulture. Therefore, since Mr. Williams thinks fit to slight it, we may as well inquire upon what grounds? If, by putting cultivator in italics, Mr. W. means to

what grounds? If, by putting cultivator in italics, Mr. W. means to insinuate that I am not a cultivator of herbaceous plants, it may be satisfactory to him to learn that I have grown many thousands, and seen more growing than any other horticulturist in existence! My experience of them in various soils and districts induced me to reject many things of the highest beauty and rarity, because I knew that they could not be depended upon to flower and grow freely in every soil. Mr. W. begins by objecting to a four-feet phlox, and says a three-feet one would be barely tolerated. I don't know what Mr. W.'s ideas of a mixed border may be, but it seems from this that they are very narrow. It is usually so when an adviser seeks to apply to the British islands generally conclusions derived from data, gathered on a spot on which, perhaps, he has passed his life. If a phlox four feet high be too high for an herbaceous border, what is to become of the Galegas, of the magnificent tall Delphiniums, of the taller Campanulas which grow higher than four feet when well done, of several splendid asters, of one fine autumnal flowering Dracocephalum, and of the Tritomes, one of which presumes to send up a flower

stem near seven feet high, and as thick at the base as a rake handle?

A good herbaceous border should have many plants over four or even five feet high, and so much as six or even seven feet, and it should be gradually worked to the front margin till a finish is made with the silvery saxifragas and like plants. Campanula coronata is a duplex variety of C. persicifolia, very good, but not surpassing many named. But as the species is named, it may reasonably be inferred that all its varieties will do. As the list was limited, the species only could be named, and it was thought better to recommend real distinction than enumerate varieties nearly allied to each other. Diclytra is not the proper way to spell Dielytra, though so good a man as Mr. Thompson, of Ipswich, has said it is. Spiræa Japonica is a lovely plant, but it possesses the failings, for gardens generally, that made me exclude dozens of fine plants, probably to the surprise of those who live in places where they do well: in cold stiff soil it might live for a century, but never flower in a noticeable way or make even a decent head of foliage. There are soils and gardens where it does beautifully. But even at its best (and that is when grown well in pots, and gently forced for house decoration), it is not half so beautiful as the plant to which Mr. W. compares it - Dielytra spectabilis, which does well everywhere, and is one of the most beautiful things in existence, both for colour, form, and the graceful disposition of its blossoms. Of course nobody said bulbs were herbaceous plants, but no good herbaceous border should be without them. "Herbaceous border" is a bad name for what should contain hardy plants of fine foliage, alpines, grasses, bulbs, herbaceous plants, etc., and which indeed would be of little interest and beauty unless it represented the several sections. We were endeavouring to find out the best plants for the herbaceous border, and not engaged in the unprofitable fiddling of defining what were and what were not "true herbaceous plants." Would Mr. Williams say if Narcissus triandrus is superior to odorus, poeticus, and maximus for gardens generally? I think not, and I have grown all the tribe that are obtainable in the botanic gardens of the United Kingdom. Bocconia cordata is a good thing, but one of many scores rejected

from my list, which was written with the hope of finding one hundred good plants that would give satisfaction to every one who tried them. And I felt satisfied that those who tried them would be induced to seek further, and find out the hundreds of good things omitted. Trollius europæus is a good plant, and very sweet, too, which we cannot say of very many of its order. I remember meeting with a fine tuft of it growing on a big stone, without any soil, in the middle of a Cumberland stream, during the past summer, and was surprised to find it blooming strongly from a mere crack. But let Mr. Williams try Trollius napellifolius, and he will find it very much better. The poppy he mentions, and speaks so highly of, is in my list, or at least the species, for it is only a variety of P. orientale. I find, by the by, that some of the things he finds fault with me for not naming are in my com-

Now, I shall look over his selection, and may say at once that it is very good. The best of them are enumerated in my complete list. I will begin by begging a good plant of the true Dracocephalum grandiflorum. I will send him my address, and promise anything from Lilium superbum to Iris cristata in return. Lobelia syphilitica is a very poor plant indeed to recommend to gardeners generally. It only succeeds well in a partially shady place, and in a good moist soil, and is at best a second-rate thing. Centaurea ochroleucra is one of those plants that serve to make herbaceous borders contemptible to the generality of gardens. Sedum populifolium is curious, but not beautiful, and curious things I avoided. Ranunculus montana is a gem, but must go among the alpines. There is a prize offered for the best selection of alpines. Will Mr. W. send a list to the Editor of the "Gardener's Magazine?" Asphodelus ramosus is coarse when strongly grown, and not remarkable at any time. Digitalis aurea is infinitely inferior to the worst variety of the common foxglove ever seen. What is D. speciosa? Why mention the worst Yucca? Gloriosa, recurva, and glaucescens are as far before the filamentosa as the dome of St. Paul's is to an empty crab-shell! Cheiranthus Marshalli is not a hardy herbaceous plant. It is not even perennial. Can you say it is, Mr. W.? Do not confound it with C. alpina. Iris acuta is infinitely behind tenax, pallida, and a dozen other pretty species. The Uvularias are hardly quality enough, and fail miserably in many soils in England. Stackys aurantiaca is of very doubtful merit. What is it? Probably a Phlomis! Statice latifolia, true, is much better than Gmelini. Ptarmica vulgaris fl. pl. is a preciously good double white flower, fit for cutting for wedding bouquets, and fine in effect. I have seen many fine things since that list was compiled, and wish only to make a few alterations. As it is, I believe it as nearly perfect a century of plants for all soils and all parts of the United Kingdom as could be selected. I wish to remove Aster bessarabicus, and substitute the fine bright Lathyrus rotundifolius. Also to say that so fastidious a plant as Trillium grandiflorum should not be named, were it not that it is lovelier when in flower than the best plant of Phalænopsis ever seen. I have seen bushes of it this season two feet high, and with scores of flowers on each. grow it like that is to plant in deep shade, and in a moist spongy deep soil. my vines are magnificent, but I wish to add one named De Bergii, which I think I did in correcting the proof, but the printer omitted to insert it, and I also wish to specify one variety of Germanica—I. "Victorine." I. Gibraltarica is not the true name for my favourite Iberis, the one sold by the London nurserymen as I. corræafolia, nor can I find any one who can tell me its right name. Judging from De Candolle, it is likely to prove Iberis contracta.

In conclusion, I may also assure Mr. W. that I left out some splendid things like Dodecatheon Jeffreyanum because of the utter difficulty of the many procuring them as yet, and I may also assure him that though I have searched for these fine plants in many parts of England, Ireland, and Scotland, I have hardly as yet begun the work with them that I intend to pursue, and while without the slightest doubt that I shall, before becoming quite white, see these fine plants obtain their due place in every British garden, and I hope, too, to place something on record about them quite different from my little list of one hundred, and which will endeavour to include all that are really good, and guide to their tasteful arrangement and successful culture. Meantime, I am pleased to find any person who takes the interest in them that Mr. Williams does, and wish him all success, and hope

one day to see his interesting collection.

NEW PLANTS.

OTYLIA BICOLOR, Two-coloured Notylia (Bot. Mag., t. 5609).-Orchideæ. This little orchid is a perfect gem. It was first met with by Mr. Skinner in Guatemala, afterwards by Hartweg in the mountains of Comalapan, where it grows upon oaks. The whole plant is not more than an iuch and a half high; leaves usually five; flower-spikes drooping, bearing from ten to twenty elegant little flowers, which

are mingled white, lilac, and yellow.

GLYPHEA MONTEIROI (Bot. Mag., t. 5610).—Liliaceæ. A stove shrub from tropical Africa. It has handsome ovate-serrated leaves, and yellow flowers an inch

and a quarter in diameter.

VANDA BENSONI (Bot. Mag., t. 5611).—Orchideæ. An elegant species discovered in Rangoon by Colonel Benson, who sent plants of it to Messrs. Veitch, who flowered it in the summer of 1866. The plant grows a foot high, bearing a mass of coriaceous leaves, a span or more long. The flower-spikes are upright, manyflowered. The flowers closely arranged about two inches across; the sepals and petals of a yellowish-green, marked with reddish-brown dots; lip same length as the sepals, of a beautiful violet colour; the auricles and spur at the base, white.

C. ELOGYNE BIFLORA, Two-flowered Calogyne (Gard. Chron., 1865, p. 1035).

A botanical curiosity, bearing ligulate-acute leaves, not reaching a span in height. and flowers not an inch long. The flower is white; the lip bears a callus, which

is not usual in the genus.

STANHOPEA SACCATA, Pouched Stanhopea (Gard. Chron., 1865, p. 1035).-Orchideæ. A very fine species, identical with the S. radiosa of Lindley's Fol. Orch. The flowers are not much inferior to S. tigrina, and emit an agreeable

perfume.

ODONTOGLOSSUM SCHLIEPERIANUM, Schlieper's Odontoglot (Gard. Chron., 1865, p. 1082).—Orchideæ. This plant has been well studied in England both by Bateman and Day, but was for a long time confounded with O. Insleayi and other species. It differs from the species named in flowering late in summer, and not in The colours are less bright, the prevailing hue being light yellow, and the inferior parts of the flower only are marbled. It is an inhabitant of Costa

CATAKIDOZAMIA HOPEI, Hope's Zamia (Gard. Chron., 1865, p. 1107).— Cycadeæ. A noble plant, discovered in Eastern Australia by Mr. Walter Hill, director of the Brisbane Botanic Gardens. The stem attains a height of sixty feet, and from nine inches to a foot in diameter. The foliage is elegantly pinnate; the pinnæ linear, entire, nearly a foot long and an inch wide. The cone arises singly from the centre of the crown of leaves.

ODONTOGLOSSUM DAWSONIANUM, Dawson's Odontoglot (Gard. Chron., 1865, p. 1226). - A beautiful Mexican species in the way of O. Rossii, bearing slender racemes of three or four flowers, each larger than a florin; the sepals rose-coloured, with crimson blotches extending to the apex; the petals and lip pure rose.

CYMBIDIUM HOOKERIANUM, Hooker's Cymbidium (Gard. Chron., 1866, p. 7) .-Orchideæ. A magnificent species with the habit of C. giganteum, but with larger flowers of a pale apple green; the lip and colour is whitish, with numerous purple

blotches.

PLEUROTHALLIS SAUNDERSIANA, Saunders's Pleurothallus (Gard. Chron., 1866, p. 74).-Orchideæ. A small Brazilian orchid, possessing but few claims to attraction as a decorative plant.

Aerides Thibautianum, Thibaut's Aerides (Gard. Chron., 1866, p. 100).— Orchideæ. A beautiful species, with the habit of A. quinquevulnerum. flowers are in a pendulous raceme, and have a rich amethyst colour.

EPIDENDRUM DICHROMUM VAR. STRIATUM (Gard. Chron., 1866, p. 218) .-- A beautiful variety of a well-known plant. The sepals and petals are white, and all the

veins covered with deep purple lines.

Spiranthes Margaritifera (Gard. Chron., 1866, p. 219) .- A South Brazilian orchid; the leaves are dark green, with pretty white spots, but the flowers are valueless in point of beauty.

TRICHOCENTRUM ALBOPURPUREUM (Gard. Chron., 1866, p. 219).—Orchideæ. A pretty member of a genus which contains few attractive species. The flowers are nearly as large as those of *Epidendrum macrochilum*; the sepals and petals cinnamon-bordered, with yellow outside; lip white, bearing on each side a large purplish-blue blotch.

TRICHOCENTRUM CORNUCOPIÆ (Gard. Chron., 1866, p. 266).—A pretty little epiphyte, from Southern America. It is a "botanical curiosity" of no value to

amateurs. The flowers are greenish-white.

LOMARIA CILIATA (Gard. Chron., 1866, p. 290).—A distinct and elegant arborescent fern, from New Caledonia. In the swollen decurrent bases of the pinnæ it has some resemblance to L. Gibba, but it differs essentially in its less numerous crown of fronds; it is further dissimilar in the much less crowded series of pinnæ, as well as in their very apparent fringe of spinulose teeth. "The plant may be regarded as one of the most ornamental, and also one of the most distinct-looking

and interesting of the genus."

LOMARIA DURA (Gard. Chron., 1866, p. 290).—A very distinct fern, introduced from the Chatham Islands, some years since. It is related both to L. lanceolata and L. blechnoides, but differs from them in its thick leathery texture while fresh, and in the somewhat cartilaginous margin of its fronds. It is a very handsome hardy greenhouse or cold frame plant, producing a spreading head of arching evergreen, dark-green sterile fronds longer than the fertile ones, which latter are remarkable for their stout, densely-fruited, very blunt, crowded pinnæ and fringed indusia. The plant has, in some cases, obtained the unauthorized name of L. recurva.

CATTLEYA AMETHYSTOGLOSSA VAR. SULPHUREA (Gard. Chron., 1866, p. 315).— This fine variety has flowers of as pure a lemon colour as those of C. citrina, and

the lip is cream-coloured.

ONCIDIUM HOLOCHRYSUM (Gard. Chron., 1866, p. 410).—This pretty orchid has been long since described by Reichenbach; but having been reintroduced by Messrs. Backhouse, attention is directed to it anew. The racemes are as densely-flowered as those of a Foxbrush Aerides; the flowers gold yellow.

flowered as those of a Foxbrush Aerides; the flowers gold yellow.

PALAVER FLEXUGA (Gard. Chron., 1866, p. 435).—Malvaceæ. A slender annual, eighteen inches high, more or less clothed with stellate hairs. Branches decumbent, lowermost leaves oblong-ovate, uppermost leaves bipinnately divided;

flowers solitary; corolla an inch in diameter, of a pale mauve colour.

Dendrobium pycnostachyum (Gard. Chron., 1866, p. 459).—Orchideæ. This pretty little dendrobe comes very near to the D. denudans of Don. It has permanent leaf-sheaths, which assume more or less of a purple colour. The flowers are in dense spikes, white, with green lip. "Very interesting to those who like to, see the elegant forms of smaller orchid flowers, but totally indifferent to those who measure

the value of orchid flowers by feet and inches."

Osbeckia rubicunda (Gard. Chron., 1866, p. 562).—Melastomaceæ. A handsome shrub, which in appearance resembles a Pleroma. It is clothed with bristly hairs, and has oblong-oval acute leaves. The flowers are terminal, calyx tube cupshaped, thickly beset with peltate scales, which are deeply divided into a number of linear, radiating pink subdivisions; corolla two inches across, of five roundish deep purple petals. "The peculiar calycine scales, together with the purple flowers and yellow anthers, give the flowers a very rich appearance."

ATHYRIUM LATIFOLIUM (Gard. Chron., 1866, p. 634).—A deciduous fern, introduced from Chili by Messrs. Veitch and Son. "Though having the texture and fructification of Athyrium Filix-femina, it is abundantly distinct, not only in structure, but in its much smaller size (six to eight inches high), and, on the whole, bears more the aspect of a dense Asplenium lanceolatum than of a Lady Fern."

Lomaria Lechleri (Gard. Chron., 1866, p. 634).—A Chilian fern, introduced by Messrs. Veitch. It is allied to L. blechnoides, but differs in its erect, not creeping or climbing caudex; in its larger size generally, the sterile fronds being at least a foot long; and especially in the much taller fronds, which rise considerably above the sterile ones. It is a fine evergreen hardy greenhouse fern. The fronds spread into a head of eighteen or twenty inches diameter, and reach from one foot to eighteen inches in height.

GARDEN GUIDE FOR JANUARY.

Kitchen Garden.—Supposing the vacant plots to be ridged up, opportunities for manuring should be made the best of. During frost, wheeling may be done without harming the ground, and the manure may be put in the trenches, and a top crust from the ridges tumbled down upon it with the fork. This will be a good preparative for spring work.

Flower Garden. — There is little to be done beyond keeping things clean. Roses may be planted, so may anemones and ranunculuses. Flower-beds that have not been touched since last season should be looked over, and perhaps a little

manure may do them good.

Fruit Garden.—Where manure is plentiful, it may be well bestowed in mulching the ground amongst strawberries, raspberries, currants, gooseberries, and bush pear and plum-trees. If fine fruit is desired, there must be food afforded to make

it. Planting and pruning may proceed.

Greenhouse.—Fire-heat may be increased, now that the days are lengthening, and the plants have had a rest. Subjects to be propagated must first be made to grow in a genial temperature, and then cuttings of the young shoots may be taken. Primulas, cinerarias, cyclamens, and other subjects in flower, to be kept warm, near the glass, and have regular watering.

* * Past issues of the FLORAL WORLD contain copious calendars of operations, and the "Garden Oracle," has a complete and concise calendar adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale

this year.

TO CORRESPONDENTS.

How should I continue a certain set of beds with the colours yellow, blue, white, pink. Last summer I tried in the following way, but did not well succeed. 1st, yellow pansies, which continued bright all summer; 2nd, blue Nemophila, which when over I replaced with blue Lobelia; 3rd, white pinks, which when over I replaced with dwarf fuchsias; 4, Saponaria calabrica. The Nemophila made a very beautiful bed, but when over was very badly replaced by blue lobelia, which was not nearly so good a colour. The white pinks were not well replaced by the fuchsias, which, although very lovely, were not at all a bed of the like character. The Saponaria did not come into flower till the pinks and Nemophila were over, and all that time the Saponaria bed was of course without any colour. height and growth of the Nemophila and Saponaria are what I most want for these beds, but if you could suggest any other kinds of flowers which would have the different colours I want, or others which would blend as well, and make a more regular and more lasting display, I should be much obliged. Could it be managed with dwarf herbaceous plants of any kind? I wish to know if it would be possible to adopt the saxifrage and houseleek (mentioned in the Floral World of November last as beautiful things for a bed) on a bed diamond-shaped, and only $6\frac{1}{2}$ by $3\frac{1}{2}$ feet to the corners of the diamond? I am obliged to do so much of the gardening in my little place myself, having only occasionally the assistance of a man, that I should be much obliged for a hint as to filling my beds with hardy things which would keep the garden tolerably bright without constant change.—A LADY SUBSCRIBER. [The problem proposed by "A Lady Subscriber" is well worth whatever trouble may attend its solution. I. The yellow pansies are admirable, but we should expect them to look very weedy towards the end of the summer. They appear, however, to give satisfaction, but suppose them to fail, what should we plant in their place to maintain a display of yellow. Calceolarias would scarcely do, for they decline in beauty towards autumn, and would be too tall for the place. If the colour were not too strong, Gazania splendens would do, provided they were spring-struck plants, or they would be fast coming

into bloom when the pansies acquired a weedy look. Enothera riparia would be just the thing, and the way to manage it would be to plant it alternately, and rather close with the pansy, and when the pansy had done its duty, to cut it back quite close, and allow the Enothera space for its performances. That pretty gem, Achillea tomentosa, would probably come in well for work of this sort, but we can speak with confidence only of the Enothera, because its habit is the same as that of the pansy. 2. The soft blue of the Nemophila could be very well replaced by the green-leaved form of Agathea celestis, which flowers very freely in the autumn. This is the plant long known in gardens as Aster capensis and Cineraria amelloides. Unfortunately this is a tender plant, but it needs no more care than blue lobelia. But no need for tender plants after all, for have we not half-a-dozen lovely Campanulas that will serve the purpose admirably? Our correspondent may take her choice of Campanula alpina, 6 inches, dark blue; C. carpatica, 3 inches, a beautiful shade of blue; C. fragilis hirsuta, 3 inches, blue. We recommend C. carpatica, and that it be planted in tusts with intervals between for sowing the seed of Nemophila. Another suitable plant is Viola cornuta, of which there are several forms, but probably the one offered by Mr. B. S. Williams, of Paradise Nurseries, Holloway, under the name of "Purple Queen" is the best. At any rate Viola cornuta is one of the best plants in the world for belts and lines, and is as hardy as chickweed. 3. Fuchsias are certainly quite unsuited to follow white pinks, but the dwarf variety of Double white pyrethrum is just the thing for the purpose, for it flowers freely till frost puts a stop to its career, and is scarcely anything taller than the white pink. To prevent mistakes as to the plant meant, we give the catalogue name of it, Pyrethrum Parthenium flore pleno. Probably P. saxatile, growing 4 inches high, and with white flowers in autumn, might be useful in this system. A line of Venus's Navelwort, Omphalodes linifolia, or tufts of it sown between the pinks about the end of April, would be very beautiful to succeed them. Then again we have the white variety of Campanula carpatica, which would be a capital match as to height and habit to the blue kind, if that were used in place of Nemophila. 4. The Saponaria difficulty may be got over provided the bed is not exposed to the ravages of slugs and snails, by planting in it Saponaria ocymoides, which spreads fast, and flowers most beautifully from the early part of May to the middle of July. We suppose the species of our correspondent is S. calabrica, a most beautiful annual. But this may be had in bloom early by sowing the seed in September. pose them combined, S. ocymoides in tufts, with space between to sow S. calabrica in April, then there would be pink flowers to the end of the season. Erythræa centaurium, a charming little plant with pink flowers in autumn, would work into this scheme admirably. The Saxifrages and houseleeks mentioned in the November number of the FLORAL WORLD are adapted for beds of any size from two or three feet to two or three hundred yards.—S. H.]

MYOSTIS SYLVATICA.—Commelina.—This beautiful plant prefers shade, but it will thrive in a sunny situation, if in a cool, moist soil. The way they do some of these things at Cliveden is to allow them to grow wild amongst grass, and the spots so treated are not mown until the flowering of the most attractive plants is over for

the season

Books.—C. D.—The following monthlies are all we are acquainted with:—The Botanical Magazine, edited by Dr. J. D. Hooker, 3s. 6d.; the Floral Magazine, edited by Rev. H. Dombrain, 2s. 6d.; L'Ilustration Horticole, edited by Professor Ch. Lemaire, 14s. 6d. per annum. The first two can be obtained through any bookseller; the last is distributed through the post, and the London agent is Mr. Silberrad, Harp Lane, Tower Street. Your geranium must not be repotted till the end of March.—Lady Subscriber.—There is no good book devoted exclusively to stove ferns. You would find Smith's "British and Foreign Ferns," published by Hardwicke, Piccadilly, useful; Sweet's "Hot-house Cultivator" furnishes good instructions for all the best known older kinds of stove plants.



WOCDWARDIA RADICANS.

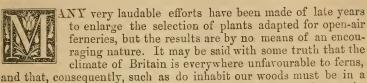
THE FLORAL WORLD

AND

GARDEN GUIDE.

FEBRUARY, 1867.

ON SOME NEARLY HARDY EXOTIC FERNS.



less degree of perfection than is possible for them, and must be some degrees hardier than their nearest allies that are foreign to our soil. Of course I cannot ignore the beauty of our native ferns, and I bear in mind the luxuriant growth of such species as the common Lastrea, common Athyrium, and common Scolopendrium in the "ferny coombes" of Devon. Yet when I compare the best homegrown specimens with examples of the same species from warmer climates, I see plainly enough that none of our native ferns attain with us the highest degree of beauty of which they are capable. It will be remembered by some of our readers that some years ago I directed attention, by means of distinct examples, to the superior beauty of nearly all the British ferns, when carefully cultivated, to the best wild specimens that could be found. There are many reasons why ferns should not be quite at home in Britain; the winters are too severe and prolonged, the springs too cold, the summers too dry. The south-western parts of England are noted for the superior beauty and abundance of ferns, and indeed they are the principal attractions for persons devoted to horticulture and botany to visit Devonshire and Cornwall. The comparatively high state of perfection of all south-western ferns proves the truth of the general remark above made on the general insufficiency of the climatic conditions in this country for the growth of ferns. But compare the ferns of Devonshire with the ferns of the south of Europe and the Canary islands; that is to say, compare examples of the same species respectively grown here and there, and in many instances the difference will be such, that it will require more than a superficial knowledge of the subject to enable an observer to determine their identity. These remarks are not intended to discourage fern-growers. So far as ferns do attain to perfection in this country,

they are the most elegant forms of vegetation known to us. The common Lastrea in a half-starved state in a common garden border is a glorious object; but it is far more glorious when unfolding its graceful fronds in a damp, shady wood, or in a well-kept garden rockery. Let the cultivation of ferns be pursued, therefore, by those who love it, without respect to the broad question we now raise as to the comparative unfitness of the British climate for ferns of all kinds. But the question does bear directly on the comparatively small results attained by oft-repeated experiments in the planting of exotic ferns in English out-door ferneries. More than this, it bears upon the experiments, and may be made the foundation of a warning to all our readers not to be led away by certain statements that have been made public, as to the adaptation of numerous exotic ferns of noble proportions for permanent occupation of our gardens. We shall never be suspected of opposing experiments in the acclimatizing of fine plants, for we have laboured too long and too ardently in such endeavours to be open to doubt upon the subject; but experience has taught us some degree of caution, and we are most anxious just now to guard our readers against being led away by some rash assertions that have been made as to the hardiness of several species of exotic ferns. The public have been assured, on what is commonly termed a high "authority," that the tree-ferns of New Zealand, and many of the Lomarias of Brazil, may be made permanent residents of English gardens. This we do not believe, and we hope none of our readers will be so rash as to plant out valuable exotic ferns of any kind until assured on what they consider sufficient authority, or convinced by personal observation, that the species to be planted is really entitled to be regarded as "hardy." During the discussion of this question, it has certainly met with the most sensible treatment in the Irish Farmer's Gazette, the editor of which believes that some of the most favoured spots in the "Emerald Isle" might be found warm enough for Dicksonia antarctica, and a few other of the noblest nearly hardy exotic ferns. So possibly some of the most snug retreats of Devon might be suitable for them; yet there must always be a risk, for the recent severe frost did not greatly spare those luxuriant parts of our isle which the gulf stream warms with its tepid waves. would be very delightful to see the glorious tree-ferns of New Zealand towering up in the midst of British Osmundas, Lastreas, and Scolopendriums, no one can question; nor will the writer of this cast even the minutest pebble at the enthusiast who looks forward with hope to the day when such a thing shall be. Let the enthusiast hope, and while hoping, let him labour to bring about the result (if it be possible) to which his hopes are directed.

> "Hope springs eternal in the human breast, Man never is, but always to be blest."

Now let us go, as is our wont, to the region of the practical. There are plenty of subjective books on gardening, but the Floral World is mostly objective, and we have before us a few objects on which we wish to expatiate. There are some noble ferns of exotic

origin that are nearly hardy in this country, and all of which can be used in the open-air fernery, or to decorate the lawn or terrace, without any risk of losing them. To speak of them in a general way, we may say that they require a cool house to keep them through the winter; but if kept in pots and tubs, they may be placed out of doors all the summer, and may even be plunged to give them the appearance of being rooted in the ground, and to render the pots and tubs invisible. There is scarcely any limit to the use of ferns in this way, for at Battersea Park last summer costly stove ferns, such as Cyathea Smithii, Cyathea dealbata, and Alsophila australis, were plunged out and did well. But in this paper we are to keep to those that are nearly hardy; and I repeat, that to make a good use of them, without incurring any risk of losing the plants, is just a question of house room to keep them through the winter. It has been my lot to discover means of increasing house room without increasing the extent of glass, by tying up the fronds to stakes, so that when these ferns acquire a great size they shall occupy no more room than the exact measure of the pots.

I give as an illustration to this paper a portrait of a particularly favourite plant of mine, a fine Woodwardia radicans, which is represented as it stood on the grass turf here last summer, mounted on an old stump of a tree. That plant is now so large that we cannot afford house room for it while the fronds hang down in the way they are represented; and when it is taken in for the winter, the great fronds are gathered up, and tied upright to stakes, just as if the plant were to be packed for a journey; and then the width of the pot is the exact measure of the space it requires. I find that if the fronds of this, and any other spreading ferns of a hard texture, are tied up with care, they suffer nothing; and when untied in the spring soon fall into natural positions, and are as good as if they had never been touched; and even if one or two are damaged, nature soon repairs the mischief, and before the summer has advanced very far there are new fronds to take the place of those damaged. This is a wrinkle of some value, I know, but I shall charge no more than the usual price for the number—a sixpence franks it as before.

SELECT HARDY EXOTIC FERNS.

These ferns are usually catalogued as hardy, and I shall proceed to state what I know about them both as to hardiness, beauty, and

general adaptation for the English garden.

ADIANTUM PEDATUM.—A lovely fern, quite equal in beauty to A. formosum and a dozen other Adiantums. When planted in a warm sheltered nook, in a deep bed of gritty peat, it is quite hardy in the climate of London. The hardiness of this lovely fern is a grand fact for lovers of choice hardy plants. In case of any fear of its safety during winter, cover the crown with a cone of cocoa-nut fibre or clean-sifted coal-ashes. It must have a shady, moist position, and if planted so as to peep out from a pocket in a rockery, it has a charming appearance.

ASPLENIUM ANGUSTIFOLIUM.—A strong-growing, rigid fern, with once-divided leathery fronds. It is quite hardy in a sheltered,

well-drained position; but if exposed, or in a spot that is very wet in winter, is pretty sure to perish. As it is a cheap fern, it is well

for every possessor of a good fernery to give it a trial.

ASPLENIUM EBENEUM.—Less in stature than the preceding, this is still worth a place in the hardy fernery. In favoured spots it will last until an extra severe winter occurs, and probably would outlast the keenest frosts we have if protected.

ATHYRIUM ASPLENIOIDES.—A fine fern, rising two to three feet high, the fronds elegantly divided and a rich colour, purplish-black mingled with dark green. It is deciduous, grows freely, and appears to be quite hardy. For the rockery under glass this is one of the choicest ferns known; when seen against a dark background, it has a beauty not surpassed by that of Pteris scaberula. I very strongly recommend this for the sheltered parts of a rockery; it needs shade, and will bear a considerable degree of moisture without injury.

CYRTOMIUM FALCATUM.—This is the "laurel fern," so called on account of its dark-green leaf-like divisions of a hard leathery texture. It is a most noble object in the fernery, being as distinct in its way as a Scolopendrium, but far more majestic. It will grow in almost any soil, will bear more sun, more drought, and more moisture than almost any other fern we have, but it is not quite hardy. Therefore it must either be protected by heaping a cone of coal-ashes over the crown, or, better still, it must be taken up and potted for the winter.

CYRTOMIUM CARYOTIDEUM.—This grows to only half the height of the preceding; it is an interesting species, and requires protection

in the same manner.

LASTREA GOLDIEANA.—This fine fern (which by the way is not very distinct in character) has been very fairly tried, again and again, as a hardy fern, and here has always failed. Moreover, its growth is unsatisfactory if it is left in any respect to shift for itself; so, while admitting that it is a noble species, I am quite prepared to strike it out of the list of desirable species for those who cannot bestow pains upon it, and give it the shelter of glass.

Lastrea Marginalis.—This is one of the most beautiful of this great family, very distinct, robust, and cheerful. The fronds are twice-divided, with entire pinnules, the colour bluish-green, the fructification light orange-yellow. When strong it rises two feet high, and forms a noble tuft. This is quite hardy if in a sheltered

spot, and is one of the most useful exotic ferns known.

Lastrea noveboracensis.—This is by no means eminent for beauty, though it would be a gross libel to say it has no beauty. It grows fifteen inches at the utmost, and is as hardy as any British Lastrea.

LASTREA SIEBOLDII (Pycnopteris Sieboldii).—A glorious fern is this, and very "tropical looking"; we must surely have a picture of it in these pages some day. The fronds are divided into three primary divisions of great size; these are more or less lobed, sometimes nearly to the extent of being petiolated, though never quite so. The texture is stiff and stout like parchment, and the colour a fine dark rich green. It is not quite hardy, therefore should either

be taken up or protected. A good plan is to shift it into as large a pot as it is likely to fill in the month of April, and in May plunge it in a shady bank or some sheltered nook of the rockery. Its fine

form and character entitle it to the highest consideration.

LOMARIA CHILENSIS.—A bold, once-divided, leathery-fronded fern; a fine companion to Cyrtomium falcatum. Not quite hardy, but lives out a mild winter. When strong, the fronds acquire a length of four feet.

LOMARIA MAGELLANICA.—Fine and distinct; not quite hardy,

but nearly so.

OSMUNDA CINNAMOMEA, O. CLAYTONIANA, O. GRACILIS.—All hardy as our own O. regalis, and lovely ferns for the shady and damp

parts of a rockery.

POLYSTICHUM ACROSTOCHOIDES.—A fine companion to Lomaria Chilensis; the fronds bold, dark green and glossy, and of a leathery texture. It is evergreen under glass, but deciduous when planted out, as the first frost destroys the fronds, but the crown may be kept by covering it.

POLYSTICHUM PUNGENS.—A very fine species, rising two feet high, quite a Polystichum in style. Not quite hardy, but nearly so.

STRUTHIOPTERIS GERMANICA.—This is the glorious "ostrich-feather fern." The fronds form a correct shuttlecock-like series round the crown, and the fruit rises on a separate stalk in the centre. It is reputed to be quite hardy, and perhaps is so; but it is not at all adapted for an out-door fern, and I have never seen it looking well in an open-air rockery. If exposed to wind the fronds get torn, and if they escape being torn, they are sure to turn brown by Midsummer-day. Therefore I advise that it never be planted out until the cultivator has a few plants to spare, and is prepared to see them all spoilt, with the chance of a better result than others have attained with it.

WOODWARDIA RADICANS.—What a grand fern is this, and how badly is it treated! Because it will live on almost nothing, very few cultivators treat it liberally. I know about fifty plants that have been kept in the small pots and baskets for years without any change of soil, with their roots cramped so much that their living is like a miracle. I beg the readers of the FLORAL WORLD to treat this majestic fern in a liberal manner, to give it plenty of pot room, and a soil consisting of at least three parts mellow hazel loam, the remainder peat and sharp grit. To get up fine specimens, they should have a shift every spring to a larger-size pot, and from the largest pots to tubs, and so on for ever, the end of the shifting to be at that point where the lifting of the plant becomes a matter of difficulty. The roots may be pruned back as freely as the roots of a geranium, if they have gone down among the crocks, and have become unmanageable for the next shift. When in a twelve-inch pot, with good soil rammed in firm, the plant will produce fronds six feet in length. To propagate, the best way is to peg down three or four of the bulbs which form at the end of the fronds in a pot filled with sandy peat, and when they are well rooted, cut through the frond that holds them, and separate them. Keep them one year in the

pots, and then pot them separately. It has never lived through a severe winter in any case to my knowledge, and I have a fine one now left out from last season, which I expect will be dead when spring comes, though while writing this (January 15) I have examined it, and the crown appears to be fresh and unhurt.

WOODWARDIA ORIENTALIS.—This is of smaller growth than the last, but very much like it in general appearance. The young fronds are of a bright cinnamon colour, and the young plants are produced in scale-like tufts on the upper surface of the fronds. It is rather less hardy than radicans, and is more in need of shade and shelter.

As this list includes a few that in some districts it may be a difficulty to procure, I shall advise any of our readers who cannot obtain them of their own nurserymen, to apply to Mr. R. Sim, of the Nurseries, Foots Cray, Kent, S.E., who can meet their requirements without difficulty, even if they want to buy ferns by thousands.

SHIRLEY HIBBERD.

CULTIVATION OF BRITISH QUEEN STRAWBERRY.

BY J. CALVERT CLARKE.



T may not be generally known that bean-chaff is a very useful material to the cultivator of stiff soils, especially for the growing of the British Queen strawberry. But for the benefit of the reader I will tell him how it came under my notice, and how I was led to believe in its

virtue. I was then (eight years ago) working upon one of those badly-drained, cold, and clayey soils so plentiful in some places on the south coast, and where every attempt to grow the British Queen strawberry had failed. This was a fact made known to me by my then new employer, accompanied with a wish that were it in my power I was to devise some means to secure the well-doing of this favourite variety. Every plan that had been adopted was carefully detailed to me by the proprietor; and he added, "I had given up in despair till a few days since, when a trifling circumstance revived again my Come with me," says my employer, "and I will show you what I think you will value as a dressing for strawberries, if not for the production of this desired variety." A walk of a few minutes brought us to the back of some farm buildings, where had been, through near eighteen months, the refuse of two large stacks of beans, or in other words the chaff from the winnowing machine. It had been put into a heap on this spot with the intention of removing it at some convenient time; but still it remained there. Now it so happened that all the refuse and trimmings from the garden were taken to another spot close by, and from these trimmings one of the farm labourers selected a few runners of strawberries, and laid them by the heels in this chaff, with the intention, I suppose, of carrying them home to his own garden; but this he

did not do, as they were left there, and the spot being shady, they soon made fresh roots; and at the time I first saw them they had made a most vigorous growth, and had sent out runners near two yards round. Here then was the result of an accident, and at the same time a proof that the material would be valuable for strawberry culture. Acting upon the hint thus thrown in my way, I set to work, and had the whole of the heap brought into the garden; it was then almost like a black mould; and as a piece of strawberries had just been planted, I gave the whole surface a covering of three inches, reserving a good quantity for a trial with the British Queen. Its effect upon the newly-planted beds was something like magic, for as soon as they began to make new roots (for I had very carefully forked it in round them) they grew in a most luxuriant manner, and at the end of one summer had made an extraordinary growth. Now I know this sort of material by very many is not able to be got, but still in country places it is accessible to some; I have therefore stated what I know about it for the benefit of those few.

This occurred, as I before stated, upon a cold, undrained soil where the British Queen had previously failed to thrive. My plan of proceeding was this. I had three rows marked out, two feet apart, across a good wide quarter. I then dug out a trench the width of the spade, fifteen inches deep; the top soil was thrown out separately, and the bottom stuff wheeled away. I then put into the trench, four or five inches thick, a lot of rough spray wood, which in some country places is very cheap. This was trod in as close as it would go; the soil was then put back, and with two rows was put the remainder of the decayed bean-chaff I have before referred to; with the other row a good supply of well-rotted dung was incorporated. After this, as labour was plentiful, I had the plot frequently forked over on fine days during a period of three weeks, so that it was brought to a nice friable condition previous to planting.

When the plants were put out, and got well hold of the soil, they made a rapid growth in those two rows where bean-chaff was used; its light and kindly nature caused the roots to work vigorously, so that at the end of twelve months they were well established; while the other row, although evidently benefited by the drainage underneath, was less vigorous and healthy. From these facts one very important piece of information was obtained, that special drainage was necessary in this instance, and when applied in conjunction with this decayed matter, a still better result attended The ordinary mode of draining a garden may do in some cases for the welfare of this variety, but there are others in which extra attention is necessary in this particular, and when so applied it should be placed immediately under the rows, that they may receive the full benefit of it. But even this will not insure the well-doing of British Queen in some places, for there are hundreds of gardens in England where it is a complete failure, the true cause of which remains to this day a perfect mystery. Some, it is true, have made the attempt to explain the why and the wherefore, but their efforts to satisfy the minds of practical men have, for the want of sound reasoning, been futile.

SUB-TROPICALS THAT MAY BE GROWN FROM SEED.

BY KARL PROSPER.

RUSTING that the practical notes offered last month have been found of some use, I will again direct attention to plants adapted for "The Choice Garden," in the class usually denominated "sub-tropicals," and that may be grown from seed. I should say that those

who have not yet sown seeds of any of the kinds recommended last month, but who wish to do so, may still proceed, for there is good time yet to grow the plants to a fair size before planting them out. But there must be no more time lost, for the days are lengthening, and spring is near at hand, and all seedling plants that require a good long season of in-door nursing, as most sub-tropicals do, should now be started to take every possible advantage of the increasing daylight.

DATURA.

D. fastuosa Huberiana.—This is an annual or a perennial, at the choice of the cultivator. If sown early and grown liberally, it attains to a height of five or six feet, and producing branches freely, it will measure as much through. The flowers are nearly as large as those of D. arborea, and of various colours, violet and white predominating. There are several varieties, all worth having if there is room for them. If kept in greenhouse temperature and rather dry all winter, the plants may be put out every year, and if in a sheltered position will have a grand effect.

D. gigantea.—A very grand species, with white flowers, most

superb when well grown.

D. ceratocaulon.—A pretty robust habited plant, with immense trumpet-shaped flowers, white striped with pink, deliciously scented.

D. Knightii.—This grows to a height of four to six feet, with

superb white flowers.

For the sub-tropical garden, D. arborea, D. frutescens, and D. suaveolens are remarkable for beauty, but it is not advisable to grow them from seed, as they can be with certainty and rapidity raised from cuttings. When planted out in rich well-drained soil, and supplied with abundance of water, they grow to gigantic dimensions, and produce their noble odoriferous flowers freely.

ERYTHRINA.

The beds of Erythrinas at Battersea Park last year were amongst the most interesting and beautiful of all the sub-tropical displays. Yet I should prefer to see in a small garden half a dozen only of these plants far apart, standing separately in front of evergreen shrubs, or in that imaginary mixed border for which the O'Shane and Mr. Williams have been waging war so good temperedly. It is worth the while of any amateur to grow a few Erythrinas from seed, both for the amusement and the intrinsic value of the plants. At

page 146 of last year's volume is an excellent practical essay on the cultivation of this plant for exhibition. To what is there said I only need add, that to raise the plant from seed, and to plant it out in the garden, are feats attended with no difficulty. The soil of the bed should be rich and substantial, the plant should have abundance of water all through June, July, and August, and be taken up for the winter, and kept rather dry in the greenhouse. To start the seeds a good heat is needed.

E. crista-galli-—This plant branches freely, attaining a height of six to ten feet; the branches and leaf-stalks are armed with spines; the flowers are scarlet, and produced in plenty. There are several varieties, one of the best of which is Marie Bellanger, which does

well in the open ground.

E. laurifolia.—This grows very freely, but does not flower so abundantly as the last.

CASSIA.

All the species of Cassia may be raised from seed with facility, and there are very many in cultivation. I shall name only two, because the object of these papers is to select from amongst thousands of plants those few very best that will be sure to delight the amateur, and will be pretty sure also not to perplex him. The readers of the Floral World, I presume, would rather have their attention directed to the most select and useful plants for private gardens, than be bewildered with mere lists of names. Therefore I trust to be excused naming only two species of Cassia; those who want more will find their wish gratified by referring to any good seed catalogue.

C. corymbosa.—A freely-branching, neat-looking shrub, which grows five to eight feet high, and flowers freely in the latter part of the summer. The flowers are yellow. If planted in a sheltered border, it will live through a mild winter, being very nearly hardy.

C. floribunda.—Very handsome, with elegant pinnated leaves and

coronals of orange-vellow flowers.

The soil requisite for these should be light and rich, consisting chiefly of turfy loam and leaf-mould. When taken up for the winter, they may be freely cut back. Common greenhouse protection is all they require. To raise them from cuttings is a very easy task.

ACACIA.

A. lophantha is of great use in the sub-tropical garden, on account of its most elegant foliage; but, generally speaking, Acacias are not of much account for the purpose we are considering. When only a few plants of this species are required, they may be purchased at a low price at any good nursery; but if any of our readers should design to plant out a considerable number, the plants for the purpose may be raised from seed without difficulty. I have found it advisable to steep the seeds in water at 150° to 200° for twelve hours previous to sowing them; I place them in a pan, and put the pan on a flue or tank. The plants should be grown in a sandy soil, in which there is some proportion of peat, until planted out, and then any good

garden soil will do for them. The extreme beauty of this plant entitles it to the most favourable consideration for the decoration of the garden in summer time.

DAUBENTONIA.

This is a fine leguminous shrub, growing six feet high, with pinnated leaves and pea-shaped flowers of a scarlet, vermilion, or orange colour. All the species may be raised from seed without difficulty, but the plants do not flower freely till they acquire some age; therefore much must not be expected from the first season when raised from seeds. They are usually classed in catalogues as stove shrubs, but it is one more proof of the small reliance we can place upon those would-be authoritative documents, that all the species grow freely in the open ground if planted out at the end of May, and all may be wintered in ordinary greenhouse temperature with perfect safety; then, of course, they must be kept rather dry. D. tripetiana, D. punicea, D. magnifica, and D. versicolor are the best for the purpose of planting out; and if only one is wanted, the lastnamed is the handsomest and hardiest.

CYPERUS.

The paper plant of the Egyptians is one of the most distinct and beautiful plants that can be introduced to the English garden. I find that at page 8 of the sixth volume of the FLORAL WORLD there is a capital paper on its cultivation. I have to do with it as suitable for the amateur to raise from seed for the decoration of the garden. First, then, I would say, sow the seeds quickly in a mixture of two parts peat torn, or chopped up to the size of hazel nuts, and mixed with one part of silver sand. Place the pans or pots containing the seeds in larger pans filled with water, and cover the seeds with bellglasses. Then place on a heat of 70° or 80°, and as soon as the seedling plants spear through, take the beil-glasses off. When the plants are large enough to handle, lift them out with a pointed stick, and pot separately in the same sort of mixture as used for the seed pans, and put them in a heat of 70° to grow, but gradually cool them as they advance to 60°, but not lower. The best way to use any of the species of Cyperus in a private garden is to plunge the plants in pots about one inch deep in the basin of a fountain, or any ornamental water. They must not be put out till the middle of June, and must be housed again by the middle of September. For so choice, so rare, so lovely a plant, this is surely not too much trouble, except it be for those who can see no beauty in any garden plant except it be a geranium or verbena.

C. papyrus grows to nine or ten feet high, but is handsome and effective in a small state. Its exquisite tint of emerald green, and its light form, resembling a head of human hair, are distinguishing

points in its character.

C. alternifolius.—The variegated form of this plant is accounted one of the grandest of all the stove plants in cultivation. I shall never forget Mr. Tanton's specimen at the last Guildhall show; it was worth a crown to see that alone. But the variegated form is too

tender to be planted out, or even placed in the open air. It is of small dimensions, reaching three feet high at the utmost, and usually

C. virens.—A very elegant and intensely green species, rising eighteen inches high. Well worth having.
C. Killingioides.—Very elegant, dwarf and tufted. A very pretty plant for indoor fountains, also to put out in July, August, and September.

WIGANDIA.

We have now to deal with a plant which has acquired immense renown for its noble character and ready adaptation to the system of planting out in summer in English gardens. I first saw this used as a bedding plant in Paris, and in common with many other folks was astonished at its beauty. Conceive as you may of the beauty of leaves, it will be difficult to imagine the effect of this plant even with the most vivid description. I shall be content to say that the leaves are of a sombre green, boldly veined and undulated, and measure two to three feet in length and breadth. When planted out in beds it has a superb appearance, but in a small garden I do not think beds of this plant would be in good taste—a few plants here and there would be far better. It is useless to keep old specimens, as they become unhealthy, and it is difficult to keep them. Therefore, only a few should be kept to furnish cuttings, or they must be raised from seeds, a matter of no difficulty. Sow the seeds in shallow pans at the end of February, place the pans on a heat of 70°, and as soon as the plants are large enough to handle, remove them into small pots. Any light rich soil suits them when in pots, and when planted out the soil should be deep, rich, and well drained. If planted in a mass they must be three feet apart.

W. caracasana is the best, but some seedsmen supply seed of W. urens, an inferior kind, for it. I cannot say who supplies it true and who false; all I can do is to state the fact that many amateurs have been deceived by spurious seed and have concluded (erroneously) that the plant was not worth growing. Of course a certain remedy

for this is to obtain old plants, and propagate from cuttings.

GREVILLEA.

This noble shrub has a fine effect when planted to stand alone on a grass plot, or in the centre of a raised bed. It has the grace of a fern and the character of a tree, and will attain any height, according to its age and the care bestowed upon it. Nothing could be more proper than to place it in this list, for it is most difficult to increase it by cuttings, and hence it has hitherto been scarce. But seeds are now sent from Algiers, and there ought to be no difficulty in obtaining them.

G. robusta is the best for planting out. But better than planting is to plunge the plant in its pot in a shady, sheltered place, taking care to place an inverted empty pot beneath it to preserve perfect drainage, for much damp at the root is most injurious to this beautiful

subject.

RICINUS.

With these I shall wind up, though I still omit many good subjects. But to pass over the castor oil plants would be to leave the part of Hamlet out of the play which bears that name (a favourite expression with the English people). To grow the Ricinus is as easy as the growing of balsams and asters, but it is very advisable to set about sowing the seeds early, in order to have the plants a good size before planting them out, for size is everything. The seeds may be sown any time during February or March, and if extra large plants are required, the sowing should be made the first week in February. This, however, depends on the amount of glass at command. Where glass is limited, the cultivator had best not sow till the middle of March; then, as the plants require more room, some of the ordinary inhabitants of the house will be removed in their favour. Sow thinly in shallow pans, use a light, rich, leafy soil, plunge in a heat of 60° to 70°, keep close in a humid atmosphere, and as soon as large enough to handle, prick off into 60-sized pots singly. Thumb pots are not large enough for them, even at the first start. Shift on as required, and by the end of May you will have fine plants. The soil of the bed for them must be rich, friable, and substantial, and the position should be sheltered.

R. sanguinea, a grand variety, attaining a gigantic size, the stems

and young leaves crimson.

R. Obermanni, superb habit, and growing full six feet high. R. communis.—The common variety is not to be despised.

R. africanus albidus.—Very striking in character, the leaves and stems marked with white lines.

R. viridis.—This has green fruit and red stems, fine.

Those who can obtain seed (true) of R. Bourbonensis arboreus, and R. lividus, will find them remarkably beautiful. But probably

seed of these are not in the trade.

To finish up, I will state a fact which will perhaps startle some of the readers. It is this (and it is a fact), that if seeds of castor oil are sown in a rich, light, sunny border on the 10th of May (or thereabout), and left alone, the plants will be ten feet high before the summer is over. I dare say I shall not obtain a testimonial in silver for that startling revelation (the result of experiment), but I shall be quite content to have aided so far in promoting the beauty of the English garden.

A RIVAL TO ANECTOCHILUS SETACEUS.—The only hardy plant I have yet seen which approaches the tracery of this exquisitely marked plant—whose leaves have not unaptly been compared to veins of gold flowing over a texture of green velvet—is the golden-striped variety of the greater Periwinkle (Vinca major), whose dark green leaves during the early spring and summer months, are very finely marked with golden veins extending over their entire surface. The plant being perfectly hardy, thriving in ordinary soil, and vegetating early, will be found valuable for picturesque effect amongst early-forced plants in the conservatory and greenhouse, or as portable specimens in pots for the open borders, either singly or otherwise. Its variegation is, in many instances, so beautifully distinct as to be adapted for the earliest bouquets of spring flowers. I find it entered in Mr. Salter's catalogue as Vinca major fol. reticulata.—W. W.

THE AURICULA.

BY JOHN WALSH.

CHAPTER II .- SEEDS AND SEEDLINGS.



WISH I could begin this chapter by a faithful description or indication of the pleasure I have derived from the raising of florists' flowers from seeds. It is a recreation that thrills a florist with delight; it fills the mind with anticipations; usually many of those antici-

pations are realized, and rarely, very rarely, are they wholly disappointed. The more experience that is gained, the greater certainty attends the pursuit; but I banish at once and for ever from my own mind, and I hope the reader will banish the thought, that we are invariably to judge such a pursuit by its results. Suppose after raising and flowering one hundred seedling auriculas, I have not one worth a high place and an honourable name, it is very certain that I have been amused; I have seen something of Nature's ways, and am possibly instructed; and I have one hundred plants, that are more or less beautiful, that have been bred up by my own hands. In any hundred auriculas grown from good seed, there will be a large proportion of exquisitely beautiful flowers, and there may be a few remarkable for perfection, and every cultivator has a chance. But I repeat that it is not fair to judge the case by tangible results; there is, perhaps, nothing to show as the result of a ramble in the country. Yet none of us would condemn rambling, because in our own last ramble we neither found a rare fossil, nor dicovered a gold-mine.

It is too much the custom of thousands of persons who practise gardening as a recreation to buy plants instead of seeds. I do not wish to raise the question whether an auricula is better than a geranium, because I think it wrong to find fault with the recreations of any one provided they are harmless, but I will say that frequently the amateur gardener would consult his or her own interest in entering boldly upon the growing of plants from seeds. Look, for example, at a great bed of Sweet Williams, what a gorgeous mass of colour it presents. To have such a bed, we must sow seeds in the first instance. Or look at a frame filled with polyanthuses in bloom, and how exquisite are their lacings of gold and Here, again, to fill the frame one packet of seed will suffice, though if named sorts are preferred plants must be purchased. Even common border annuals appear to me much more interesting than the best of bedding plants, because we must grow them from seed; they thus become our children; they seem to be dependent upon us; we have an interest in their life history, and these thoughts and feelings make in the mind and heart an aggregate of delight. But I say no more on the general subject, for the theme particularly specified in the heading to this chapter demands attention.

Respecting seeds, all the first-class seedsmen supply good auricula seed. The seed is carefully saved by cultivators who possess collections, and if it is good it commands a high price. Those who

for the disposal of it.

intend to raise auriculas from seed, therefore, may buy with safety, provided they go to the most respectable seedsmen, and pay the most respectable price. Cheap seed of any florists' flowers is not worth sowing. If cheap seed were given me, I would only burn it. When the collector has a good collection, seed may be saved at home, and every cultivator prefers seed that has grown under his own inspection; to say nothing of the additional interest that is created by the process of hybridizing. I conclude that you have the seed, and now

In the essay on the Auricula in "Garden Favourites"—the only essay on the subject in any modern work that is worth reading-Mr. Hibberd recommends sowing one part of the seed as soon as it is ripe, and the remainder in the month of February following. This is excellent advice, and indeed it would be better for the veteran cultivator to sow all his seed as soon as dead ripe. But for beginners, and those amateurs who wish to reduce to the least possible amount of labour their several gardening pursuits, sowing in February or March answers very well. To sow in the open border is almost as bad as throwing the seed away. Procure some large shallow pans or wooden boxes—they must be shallow—cover the bottoms of these receptacles with an inch or two of small crocks, and over that lay a mixture of three parts mellow hazel loam, one part turfy peat, one part leaf-mould, and one part sharp sand. Fill nearly to the edge of the box or pan, and then press the soil quite firm with a flat piece of wood; sprinkle the seed thinly all over, and cover with an eighth of an inch of the sand soil, and press down again

with a piece of board. I suppose the soil to be in a moderate state of moisture, so that it will not require watering. It is well to manage so that there will be no need to water till the plants are up. This cannot always be done. There are just two advices suitable in reference to this matter. The first is, lay a sheet of common window glass over the seed-boxes or pans to check evaporation, and as soon as there is a fair sprinkling of green upon the soil, owing to the sprouting of the seed, take the glasses off. The second is, if the seed-pans want water, fill some large vessel with water, and gently lower the seed-pans into it. The water will flow over the soil, and wet it through, without disturbing a particle of soil or seed. This is a golden rule for watering seedpans. The last point to be considered is, whether we shall submit the seeds to heat or not. My advice is, be content to keep the seed-pans in a frame or pit, safe from frost, wind, and sunshine, and wait. If the seed is good it will all germinate in time. Still, a gentle heat may be used, and the result will be a more uniform and quicker sprouting of the seed. The danger is that now and then the heat may be too much, and to avoid that danger I have always preferred to wait till the increasing warmth of the season causes the seed to germinate without artificial help.

Some time between the sowing of the seed and the first appearance of the plants, make up a bed to receive them. The best way is to make up this bed in a frame, so that a light can be put on for the winter. But this may be dispensed with. In any case, the

bed must be well drained, and must consist of light sandy loam, enriched with about a third part of quite rotten manure. Into this bed transplant the seedlings, as soon as they have five leaves each, and plant them in the bed five inches apart every way. Water as needful, shade from the hottest sun; if blooms appear in autumn, nip them out; when winter comes, protect from storms by means of a few hurdles put aslant, or by means of frames laid flat over them, with flower-pots to keep them at a proper height. If you take no notice of them at all, you will probably not lose one, but they will look better in the spring if sheltered, than if left to all the injurious effects of rain, wind, and frost. When they flower, mark the best with numbers, and enter in a book the numbers, with accompanying descriptions; and in July take up such as are worth special attention, and pot them. As for the rest, plant them in the borders, or give them away, or destroy them.

Alpine auriculas are of less value than the show varieties, but they are exquisitely beautiful. Mr. Charles Turner, of Slough, has of late years shown alpines in such splendour, that many auriculagrowers, who would a few years ago have shuddered to have such things, are now collecting the best and raising seedlings. The depth of the body-colour, the purity of the gold or sulphurcoloured paste, and the matchless form of some of the alpine

auriculas are—

"Things to dream of with more ardency Than the death-day of empires."

The raising of alpines from seed is an amusement particularly well adapted for ladies, indeed I wonder every lady gardener has not a little collection of these gems, so refined and lustrous are they, yet so simple in their beauty. As to the raising of alpines, there is no better process than that described above for the show kinds,

therefore to recommend them is the best I can do.

I have given above the mixture of soils I have long used for the seed-pans, and I am satisfied no better mixture can be made. But I have seen some good seedlings raised by an amateur who had nothing better than common garden loam and some cocoa-nut fibre. He mixed a fifth part of the fibre with sifted loam, and having sown the seeds, covered it with a quarter of an inch of the finest of the fibre, carefully sifted out from the mass.

A FEW SUPERB VARIEGATED-LEAVED BEDDERS.

HRYSANTHEMUM SENSATION has acquired unusual importance in consequence of its beautiful creamy variegation and its perfect hardness. It will be a valuable auxiliary to the variegated geraniums, and in many cases supersede them. The stock for bedding may be struck in March or April, and the plants can be trained and

vol. II.—No. II.

pinched so as to make a close mass of creamy vegetation, or may be

allowed to grow to full height.

ALTERNANTHERA PARONYCHIOIDES is the best of the new series of amaranths lately introduced from Brazil. It is of rather diminutive growth as compared with Coleus and Amaranthus melancholicus, and quite distinct in character. The prevailing colours are olive, crimson, and orange red. It requires the same treatment as Coleus, and must be planted four inches apart every way for a rich effect.

IRESINE HERBITI has been much abused, but we have so frequently seen it in beautiful condition, and making a fine effect with its heavy mixture of bronze, purple, and crimson, that we do not hesitate to recommend it. It is very bold and distinct, very hardy, and lasts far into the autumn, when other foliage bedders are fading away. It needs to be contrasted with brighter objects to have the richness proper to it, and it makes a fine dividing line between silvery or golden leaves.

ANTENNARIA TOMENTOSA is the most perfect silvery-leaved edging-plant ever seen. It grows as close as moss, and is as brilliant as the whitest of the Centaureas. Every amateur who practises bedding should obtain this plant, and practise patience in getting up a stock of it for margins of beds. Messrs. E. G. Henderson possess it, but whether it is generally distributed we do not know.

Golden Balm.—This was first made known in the Floral World, and has become deservedly popular. But many amateurs forget what was said about it in the first instance, that it should be planted where it is to remain, and should not be disturbed for several years. Then the older it is the richer are its colours, and it really rivals Golden Chain geranium in its splendid appearance.

DACTYLIS GLOMERATA FOLIIS VARIEGATIS.—The variegated Dactylis is invaluable for edgings, forming neat tufts of grassy foliage, very brilliantly variegated. In all good gardens it has become a leading member of the group of plants used for edging. To increase the stock, it is only necessary to tear up the plants in August; and plant at once where they are to remain. It is quite hardy.

Poatrivialis, in a variegated form, has been introduced to public notice by Messrs. E. G. Henderson and Son. It is remarkable for gracefulness of form and exquisite purity of creamy variegation, verging towards pure white. It is a grass of tender leafage, growing naturally in a thick lawn-like mass, and adapted either for edging beds or actually to make close plots of silvery herbage. Possibly this very plant may lead to quite new modes of displaying bedding plants, for if we lay down a white instead of a green ground for a parterre, the colouring of the beds will have to be altered very much from the styles that prevail. As an edging plant it is invaluable, and for growing in pots and in tufts on the rockery, worth a place in every garden.

SANTOLINA INCANA.—A thoroughly hardy plant, growing four inches high, the branches closely set with minute silvery grey leaves,

making a neat edging when regularly pinched back.

VARIEGATED IVIES .- We have yet to see justice done to these

beautiful plants. If employed for edgings, we should see the outlines of the beds marked as plainly and as brightly all the winter as in summer. Many of them, such as the Cullisii variety of the silvery-edged ivy, acquire beautiful red tintings in winter, and are almost equal to tricolour geraniums. Messrs. Lucombe, Pince, and Co., of Exeter, have long since adapted variegated ivies to their proper use, and have some margins formed of ivies in their flower garden.

ARTEMISIA ARGENTEA.—This lovely plant may be grown as a close line, and then makes a lustrous silvery edging; or it may be formed into a perfect little tree, in which case it is very elegant, and well adapted for decorative purposes. It is as hardy as chickweed, and, in the form of a miniature tree, well adapted for the embellish-

ment of the winter garden.

Coleus Verschaffelti is not superseded by any of the newly-discovered plants that compete with it, by a display of richly-coloured leaves. It is as valuable as ever, and when effectively contrasted, presents a glorious mass of the richest crimson, deepening to chocolate shades. It is a most easy task to propagate this fine plant; all that is needful is a steady moist heat. The cuttings may be taken off as fast as suitable shoots are produced on the old plants, and they root well in about ten days. From the present time to the end of March is most suitable for propagating this plant, to have a nice stock for planting at the end of May.

AMARANTHUS MELANCHOLICUS.—This splendid plant is, like the Coleus, still unique in its way; none of the newer Amaranths surpassing it in colour. Any quantity may be grown with as much ease as growing stocks or balsams. A pinch of seed sown now, or in the course of three or four weeks, in light soil, and placed in a steady heat of 60°, will in due time furnish plants that will be

strong for planting out in May.

ARUNDO CONSPICUA.

T is important that every amateur gardener should be acquainted with this noble hardy grass, for though it does not eclipse or supersede the glorious Pampas grass (Gynerium argenteum) it will be valued wherever the pampas is regarded as an embellishment of the garden.

It is of robust growth, with broader leaves than the pampas, but the leaves are considerably less in length, and the plant makes a flatter mass; or at all events we cannot compare it to a fountain, which is the favourite figure when the pampas is described. Arundo conspicua is not only bold and distinct as a grass, but it flowers most abundantly from the middle of June to the end of November. This is one of its best features, for throughout the greater part of the summer, and long before the lovely Gynerium shows a single spike, this is covered with silvery panicles, that render it at once a conspicuous and a beautiful adornment of the garden. Any good soil will suit it, but in a rich soil with plenty of water all the summer, it becomes a grander plant than if starved.

CULTURE OF GESNERA ZEBRINA.

BY J. SAUNDERS.

HE general management of this fine gesnera does not materially differ from that of others, except that I would recommend a rather stronger soil. A compost of turfy loam of a free texture, well rotted leaf-mould, and light fibry peat, in equal quantities, with sufficient sand to keep the whole open, that the roots and water may freely

sand to keep the whole open, that the roots and water may freely precolate through it, is most proper. In potting these plants, it is too frequently the practice to retain a considerable portion of the old earth in which the plant has been kept through the winter, merely rubbing off the outside of the ball; this is decidedly wrong, because the earth, after having supported the plant for six months, and after that been thoroughly dried, in order to preserve the roots while resting, cannot reasonably be supposed to retain any nourishment. Yet it is into this the first-formed roots of the season will have to make way, and on it depend for their first supply of food, before they can reach the outer stratum of new earth; meanwhile they are starving. I would therefore advise that the whole of the old earth in which the plant has been kept through the winter be removed when it is repotted for starting; and it is always preferable to put them into the pots they are intended to bloom in at the first shifting, as the roots are frequently injured by removal from one pot to another. This should be done about the middle of March, and the pots plunged in a bark-bed or forcing-frame with a gentle bottom-heat; the bulbs soon begin to grow, when plenty of water should be given, and by the end of April when the sun usually attains great power, it will be advisable to shade them slightly, which should be continued through the summer.

If they are grown in a stove, a back shelf, rather shaded, will be the best situation for them during the hot weather, though I greatly prefer either a plant or a frame, as the pit then assumes a more healthy habit; and thus naturally induces an abundant bloom. though on this head little danger can be incurred from either method, as the plant is by nature so exceedingly prolific of flowers; still, by the management in frames, the quantity and closeness of the foliage is increased, and therefore I think it most desirable. With the simple attention to watering, the plant will begin to flower in September, and continue to do so for the following three months; after which it should be allowed to become dry, lessening the supply of water gradually and regularly. While the plant is blooming, the lightest and warmest part of the house should be allotted it, and at this season of the year it is worthy of the best situation that can be found. I may observe that though this plant, and, indeed, nearly the whole of the genus, are natives of margins of woods, yet they require, when under artificial treatment, a free and full supply of air, or they become attenuated.

Another matter of some moment is to observe in watering to avoid wetting the foliage, if it is ever necessary to give it them while the sun is shining, for the water will accumulate upon the leaves, and then, acting as a focus to the rays of the sun, will be the

means of burning the foliage.

By attention to these simple directions, the happiest results will occur, and one of the finest of stove plants will be produced. Most of the bulbous-rooted species of genera thrive exceedingly with this treatment, only that in forming the compost for them a smaller portion of loam should be given, and the proportion of peat increased.

LIST OF HARDY DECIDUOUS TREES

WITH ORNAMENTAL FOLIAGE.

Acer Lobelii, a beautiful fastigiate tree, beset from top to toe with short twigs and rosettes of crenated foliage.

Acer negundo variegata, a free-growing tree of diffuse habit, the leaves almost

white, and probably the whitest-leaved hardy tree known.

Acer pseudo platanus foliis argenteis, the well-known silver-leaved sycamore, a lovely sight in early spring when the new foliage is expanding.

Acer purpureum, the well-known purple sycamore; under side of the caves

deep purple.

Ailanthus glandulosa has grand pinnated leaves, and when the tree attains to a good stature is a very noble object. It will grow in the poorest and dryest soil; in

fact, a rich soil does not suit it.

Berberis vulgaris foliis purpureis, a very distinct variety of the common Berberis, the leaves deep brownish-purple, and very striking when judiciously placed in the shrubbery. The best specimens we have yet seen of this are in the plantations at Sydenham. It is there a very remarkable object. In many other places it grows poorly, and has very little colour. Climate seems to have more to do with the difference than soil.

Fagus heterophylla, the elegant and well-known fern-leaved beech.

Fagus pendula, the weeping beech, a most elegant object.

Fagus purpurea glabra, the smooth-leaved purple beech, fine for lawns and walks.

Fagus sylvatica cristata, the crested-leaved beech; curious.

Fagus sylvatica cuprea, the noble copper-leaved beech, one of the grandest deciduous trees known.

Fagus sylvatica foliis variegatis argenteis, the silver-leaved beech, a free grower, and very beautiful in the early part of the season.

Fraxinus asplenifolia, the fern-leaved ash.

Fraxinus excelsior argentea, the silver-striped leaved ash.

Fraxinus excelsior argentea pendula, a weeping variety of the last-named.

Gymnocladus canadense, the Kentucky coffee-tree, is a curiosity well worth a place in a collection of choice trees. During the summer its large green pinnated leaves have a fine effect, but in winter it has a deader look than any other tree we know.

Halimodendron argenteum, a Siberian shrub, formerly known as Caragana Halimodendron. It belongs to the Fabaceous section of Leguminous plants, and is usually grafted on the laburnum. It is one of the most elegant trees that can be planted on a lawn, having silvery foliage and pink flowers.

Juglans regia pendula, the weeping walnut, a handsome tree on a large lawn or

on a mound.

Kerria Japonica foliis argenteo variegatis, a very elegantly variegated form of one of our most useful climbing shrubs, the leaves broadly margined with creamy-white.

Koelreuteria paniculata, a hardy Chinese tree, with beautiful leaves, flowers, and fruit, and an interesting habit of growth.

Liquidamber imberbe, a maple-like tree of moderate growth, the leaves of which

die off in autumn a fine purplish-red.

Platanus acerifolia digitata, a fastigiate plane, very curious in its habit.

Platanus acerifolia pyramidalis, the finest of the hardy planes for London gardens, and for dry hot soils where such trees as elm, oak, and others requiring a deep moist loam do not thrive.

Populus canescens pendula, an exquisitely beautiful weeping tree. Populus tremula pendula, if possible more beautiful than the last.

Pterocarya Caucasica, a low tree with glossy pinnated foliage. Very distinct and fine for shrubbery borders.

Quercus cerris pendula, a beautiful pendulous oak, and indispensable where

there are any pretensions made to ornamental arboriculture.

Rhus glabra, the sumach, is one of the most ornamental trees we possess, and unequalled for its vivid scarlet colouring just before the leaves fall.

Robinia pseud-acacia, a well-known tree, remarkable for its elegant growth. Un-

fortunately, it makes more litter than any other tree in our gardens.

Salisburia adiantifolia, the elegant maiden-hair tree, a noble object for a wilderness walk or mound.

Salix Americana pendula, remarkably graceful.

Salix caprea pendula, the Kilmarnock weeping willow; a beautiful tree for water scenes.

Sophora Japonica pendula, the very perfection of a weeping tree; does not grow to any great size.

Tilia alba pendula makes a bold weeping tree, sweeping the ground with its ample foliage and gracefully pendant branches.

Tilia Europæa fol. argenteis has strikingly marked variegated foliage; the

leaf has a small irregular dark green disk, and a broad creamy-white border.

Tilia parvifolia fol. variegatis, leaves broadly margined with white; a fine companion for the ghostly Acer negundo var.

Ulmus glabra pendula, a graceful weeping elm, which forms a most beautiful specimen tree for lawns and wildernesses.

Ulmus montana pendula variegata, a silver-striped weeping elm of great

beauty.

Ulmus viminalis variegata, a small-growing, slender-twigged variety, which makes a pretty little pendulous tree. S. H.

THE BARBERRY HEDGE.—A hedge plant, to become popular, must be perfectly hardy and easy to propagate. It should also be vigorous enough to grow well in ordinary soils without manure. It should be thorny, to keep cattle from hooking it, and strong enough to keep them from breaking through it. Finally, it should be low enough to require little or no pruning. The common barb-rry (*Berberis vulgaris*) combines these qualities better than any plant that I am acquainted with. It is a remarkably hardy plant, thriving well in a great variety of soils, and is said to live for centuries. shrubby habit (growing from six to ten feet in height), yellowish, thorny wood, leaves in rosettes, yellow flowers on drooping racemes, and scarlet oblong berries, very acid, but making delicious preserves. We have a barberry hedge on our grounds at Wallingford, Connecticut, 25 rods long, and nine years old, from the seed. Two rows of plants were set, the rows one foot apart, and the plants one foot apart in the row; and set alternately, to break joints. This hedge has been clipped a little two or three times to keep it even, and is now six or seven feet high, with a firm, compact base, perfectly impervious to the smaller animals, and stout enough to turn ordinary farm stock, except for a short distance, at one end, where the soil is quite thin. An important item in regard to this plant is its habit of sending up suckers from the bottom, by which in a few years it comes to have a base from six to twelve inches in diameter .- American Paper.

CAUGHT NAPPING.

REAT as was the panic on the Stock Exchange in 1866, searcely less can be said of the consternation amongst gardeners on the morning of January 4th, 1867. The Madeira temperature of the previous week was suddenly changed to that of Arctic severity, but, fortunately for all out-door plants, the earth had been covered with a warm mantle of snow. However para-

doxical this may appear to some, it is a fact nevertheless, and all gardeners were only too thankful to see such a timely protection as the thick coating of snow that had fallen the night before. The late Donald Beaton used to say, that two inches of snow on cold frames would keep out more frost than half a dozen mats; and such, no doubt, is the case, as the state of the plants in such places proved of late, not one having scarcely the appearance of being touched by frost, whereas in the greenhouses, with the aid of heating apparatus, many things have suffered considerably; for boilers will act treacherously, and fires will turn sulky in stoves, as well as in rooms, as housemaids can testify, and attribute the cause to the ill humour of their sweethearts. Where there is a regular staff of gardeners kept, of course everything ought to be perfectly safe, although, no doubt, they occasionally find themselves in the same dilemma as other people, for it often happens that where there are plenty of hands to do a thing it never gets done at all, or only half done. But those in a position to keep a set of gardeners rarely know what plants they possess, consequently never know what they lose. It is very different, however, with the amateur. He knows full well the extent of his stock, and where every favourite is to be found, and it is the amateur, whether he keeps a gardener or not, that looks to his stove last thing at night, regulates the apparatus so as to keep the fire in all night, and give out sufficient heat to keep the water in a simmering state till morning. It is just this sort of management, hewever, that fails in such a winter as this, when the thermometer sinks below zero, as it did on the night of January 3rd, and on that very night nine-tenths of the amateur gardeners (myself among the number) were "caught napping;" for although the usual attention may be sufficient to keep out the frost of ordinary winters, it quite fails to do so in such a season as the present one. It required constant attention the whole of the night, I am told by nurserymen, to keep up sufficient heat to exclude the frost; and those who went comfortably to bed at eleven o'clock, and bid farewell to their fires by giving a friendly poke and a little more fuel, found on the morrow a very sorry spectacle, and one that gave them almost as great a chill as the plants. It is difficult to know, when overtaken with such a misfortune, the best thing to do; but the plan I adopted myself, and which was attended with considerable success, was to remove them at once into a dark cellar, before the sun had time to get round upon the house, and shed its fatal rays upon them. This, of course, is a troublesome operation, and when the cold is so intense that you can scarcely feel the pots in your hands, it is anything but agreeable, but the constant exercise of running up and down stairs, with all the help you can muster (for what has to be done must be done quickly), soon gets your blood into circulation, and the work is done almost as soon as it is thought of. In this dark abode they were kept for some days, without admitting a particle of light, the temperature being about 35°. Some of them were immersed in cold water, whilst others were not, and I am not quite sure whether it is not better to let them alone, as several of those that were immersed looked in a very pitiable condition, especially a large pot of Francoa ramosa, which, singular to say, is supposed to be nearly hardy. Many Lycopogiums were quite restored by watering, and Camellias and Azaleas appeared very little the worse the following day, the Camellias especially; but it is not surprising that they should not be hurt, as most of them are perfectly hardy; in fact, one tree that I had planted against a west wall in the autumn looks as well as possible, whilst a shrubby Veronica near to it looks as black as if it had been boiled. Many of the hardiest plants have been caught severely where the tops came out above the snow and were exposed to the sun, whereas the lower parts are as fre-h and green as they are in May. It is this that gives us such comfort when we think of our tea rosts, the tops of which are killed outright, but are not the least the worse for that. I did not think it well to test the hardiness of Maréchal Neil, about which there has been some little difference of opinion of late; on the contrary, I took the precaution just in time of covering it well with dry fern,

upon which fell some inches of snow, but lest there should not be sufficient to keep out the frost, I threw a wheel-barrow full more upon it, burying the Maréchal in an avalanche, the result of which was that not a leaf was injured by frost; and, only to show what a great protection snow is, I gathered both Violets and Primroses immediately after the thaw that were quite uninjured. The Roses that appear to have suffered most are the Noisettes, for they cover such a large space upon walls, that it is almost impossible to protect more than the roots and lower parts; but it is much better to do thus much than not at all, as they cover the place again in a year or so if cut down. Celine Forestier, Triumphe de Rennes, and Lamarque look rather deplorable at present, but a large tree of Solfaterre, which was moved to a west wall in November, I have more hope of, as the sap had gone down so much that the branches were shrivelled, and in that state much less susceptible of frost. The old Gloire seems little the worse for the pinch, and Madame Falcot has stood it tolerably, but it is impossible to tell the extent of damage among roses until May. There are many things that have received a wholesome check, if it has not been too much for them, such as Clematis Jackmani, C. rubro-violacea, and C. lamigenosa, all of which push out their young shoots too early in the spring, and consequently get cut down in March by early frosts. There is this knowledge to be gained by the severity of the winter,-the comparative hardiness of many things that have hitherto been considered tender, and, on the other hand, the protection required by some that are supposed to be hardy. It is earnestly to be hoped that we shall not have a repetition of the intense cold, but should it again visit us, we shall have derived some knowledge from the lesson it has taught us, and that, however we may be in the habit of regarding one winter as being like another, we shall not be so easy, I think, in the matter as again to be "caught napping."

Shrewsbury, January 11th.

R. T. E.

HARDY HERBACEOUS PLANTS.

A WORD WITH THE O'SHANE ON HIS SELECTION AND CRITICISM.



TRUST the Editor of the Floral World will not consider the space devoted to a discussion on our old-fashioned plants misapplied, when I can assure him, from personal knowledge, that they are far more acceptable to the public than the everlasting harping on bedding plants, such as Viola cornuta, and stuff; our glorious old plants have too long

such as Viola cornuta, and stuff; our glorious old plants have too long been in the position of "Little Jack Horner," and it is time they should come out of the corner. When I had the boldness to criticise the O'Shane's list of fifty herbaceous plants, I well remembered the lines in Hudibras—

" Of the dangers that environ The man that meddles with sharp iron,"

and well knew the consequence of playing with edged tools and all that; but I really was not aware that I was placing myself in antagonism with a person who had "seen more plants growing than any other horticulturist in existence." Well, be it so; but

"When you talk of what you view, Think others see as well as you;"

and the O'Shane having publicly written to me, and invited me to reply, there is nothing left for me but to "gird up my loins" and do it. My putting the word "cultivator" was not to cast any insinuations, but simply to imply that their cultivation was with me a matter of necessity; and while with some they were mere matters of pleasure, they are to me both my pleasure and my bread. Let me assure the gentleman that my data are not derived from passing a life-time in Ormskirk; I have been a little farther north than that. And now, as to my ideas of mixed borders, I had no ideas at all about borders, and gave the public a list of 100 plants that would look well and do well anywhere—plants that are worthy of any position and would diagrace none—plants as individualities and not as associations or con-

nections—plants that need not propping up behind their neighbour's back, nor to peep over their fellow's shoulder. There is a place for all the tall things you mention-Phloxes, Campanulas, Delphiniums, etc., and I had prepared a list of tall plants suitable for such places. And as regards the allusion to the seven-feet high Tritoma, it has certainly very lofty pretensions; but I am heretical enough to consider it a very untidy plant, with no foliage at all commensurate with its "rake handle" of a spike. I must pass by your notice on Campanulas. Many of these are truly beautiful, but the reflexing of the outer corolla of C. coronata and its milky whiteness are matters of special interest. I feel certain that much confusion exists in this and other tribes of plants; thus, in the number of the Floral World for January, the Editor speaks of C. carpatica, three inches. This certainly cannot be what is known about here as C. carpatica. Granted that Narcissus triandrus is not so capable of roughing it as poeticus, odorus, and others, simply because it is too rare and expensive; but it is hardy anywhere, and is of matchless beauty. N. bulbocodium does excellently in our damp sandy soil. Papaver involucra maxima, which I see is creeping into many catalogues, if not a species, must have originated from "bracteata," which its bracteated stem seems to indicate. I shall not descend to individual criticism on the O'Shane's list, as he has done with mine; but, in the first $place, I \ have \ not \ a \ good \ plant \ nor \ any sort of \ a \ plant \ at \ all \ of \ \textit{Dracocephalum grandiflorum.}$ I never had but two plants of it, which I was forced to part with. I found it in a garden of a small road-side inn some distance from here, and I should be glad to beg, buy, or borrow a plant of it myself. Saw it in a London catalogue the other day, and sent for it; of course they had not got it. I cannot see how you can call Lobelia siphi-litica second rate; all that I know is it is much in demand. My Ranunculus, I find, is not R. montana I had years ago under the name of the "Mountain Ranunculus." It has a very pubescent leaf, habit of plant like Ranunculus æris pleno, but far more handsome. As to the prize offered by the Editor of the "Gardeners' Magazine" for a selection of Alpines, if you will oblige me with particulars, whether the list must comprise truly Alpine plants, or plants suitable for rockeries, I will certainly have a try. I consider Asphodelus ramosus, the "King's Spear," fit for the hand of any king or even queen, and am sorry you appear so much out of humour with the pretty yellow foxglove. You ask what is Digitalis speciosa. Don't know; never heard of it; never mentioned it! The reason I mentioned the worst Yucca (filamentosa) is because it is the best to flower. When well looked after it flowers freely, and is always a sensation plant, and a well-flowered large mass of it is before all the Tritomas in the world. Y. gloriosa, Y. recurva, and Y. glaucesens are not often seen in flower. Gloriosa was in flower a summer or two ago in a garden near Beaumaris, and all the people went on pilgrimage to see the "wonderful aloe," as it was called in the papers. Cheiranthus Marshallii is a hardy perennial plant, and a most beautiful thing it is. I have grown it for fifteen years; it is even quite shrubby. I feel sorry for your positiveness as regards this fine plant, and feel certain that my assertions will be borne out by all who know the plant. I know C. alpina very well, and shall not confound it with Marshallii. I do not know whether Stachys aurantiaca is a proper species. I had it above twenty years ago, from a nurseryman at St. Leonards; it is a curious shade of brownorange, a pretty companion for S. coccinea. Perhaps it is one of those things that you have not seen, and is no more a Phlomis than a duett is a fiddle. Statice latifolia is a noble thing. I see you have withdrawn Trillium grandiforum, more curious than useful. What has become of I. sessilis? I am sorry you cannot determine your Iberis Gibraltarica. If I. sempervirens is distinct from I. saxatilis, I do not know one from the other. I have a fine variety of I. garrexiana, but the best of all these fine things is what is known as I. corifolia (not correafolia). I shall have a word to say on these plants some day. I am glad of your determination to rescue these old things from oblivion. I had intended the same thing myself, but will gladly yield up; but I believe there is work for more than one in this line; and as for your promise of calling on me, come and welcome. J. WILLIAMS.

THE GARDEN ORACLE FOR 1867.

HIS, the ninth issue of the "Garden Oracle," will, I trust, be found as useful and original as any of its predecessors. I have bestowed the usual pains on the descriptions of new plants, new flowers, and new fruits. The descriptions of plants are taken from the accepted authorities, the descriptions of flowers and fruits are, with very few exceptions,

the result of personal observation and comparison. This is the only garden almanack which gives independent descriptions and criticisms; in other works such (so-called) descriptions are merely professional puffs. The "selections for 1867" have cost me an immensity of labour, for I have not only gone through all the classes carefully, but have distinguished in each the best 100, best 50, best 12, best 6, etc., as appeared most likely to meet the wants of amateurs whose desire it is to grow the best varieties only, and who have neither the means nor the time to buy at random and discover for themselves which are the best. Persons in need of a few camellias, or anriculas, or roses, or others in need of a large collection of any particular class of flowers, will be equally assisted by reference to the Oracle, to the saving of their pockets, and perhaps also of their time, their temper, and their available space The principal feature of the new issue of the Oracle is of ground and glass. the list of fruits. On this I have bestowed great pains. It has, in fact, been in hand some months, and I preferred to publish late and risk the loss of some part of the sale rather than a single page should pass without thoughtful revision. It must be remembered that the 500 (or thereabout) varieties enumerated in the list were selected from some 5000 or more, the object being to place before the reader the best 6, 12, 20, 50, etc., in any particular class, and thus make the selection at once adapted for the possessor of a few rods of ground, and needing only half a dozen fruit-trees, and the manager of extensive vineries, graperies, peacheries, and orchards. All I claim for my work is, that it is original, independent, and conscientious; and I feel compelled by these tokens to distinguish it from other works to which it might happen to be compared. As to its merits or demerits in other respects, I leave the public to judge, and I am not in the least nervous as to the ultimate decision.

RAISING AND FRUITING POT VINES AS PRACTISED IN ENGLAND.

BY M. A. PAVARD,

(Member of the Imperial and Central Horticultural Society of Paris).



URING the course of November, when the wood of the vines from which cuttings are to be taken is sufficiently ripe, they are cut so that each shall contain an eye. They are planted in pots of about two inches in diameter, care being taken that the pots are well drained, and filled with good field earth rather light than strong. These slips are planted at

such a depth that the top of the eye or knot is almost level with the earth in the pot. Some persons proceed as for ordinary slips—that is to say, they plant slips that are furnished with two buds. After this the pots are buried in a tan-bed formed in a greenhouse, heated little by little up to 70' or 75' Fabrenheit. The humidity of the atmosphere is maintained by frequently watering the flues, the walls, and the paths. As soon as the young plants begin to develope themselves, air is admitted on fine days; the humid heat is at the same time kept up, that they may receive no check.

When the roots touch the sides of the pots, the slips are placed in new ones about nine inches in diameter, care being taken, as in the first instance, that the pots are well drained. In the repotting, a more substantial soil is employed than before; this is often mixed with fine sand of a white pulverized kind, which, by facilitating the passage of the water, prevents its remaining to stagnate about the roots.

After the repotting, the pots are buried in a bed of tan placed in a greenhouse of sufficient height to prevent its being necessary to bend the young stems, which must be allowed to grow up without the least obstacle to their straightness. To avoid

placing a prop to each plant, which, besides being liable to hurt the roots, is a somewhat tedious operation, iron rods are placed about nine inches above each row of pots the whole length of the greenhouse, and as the stems attain the requisite height they are fastened to them. Their leaves and the flues are constantly wetted; they are watered when they require it, and more and more air is admitted as the season advances. Only a humidity agreeing with the elevation of the temperature must be carefully kept up—this being most essential to the thorough well-doing of the plant.

Towards the end of August the young plants will be about from one yard and a half to two yards in height, their diameter varying according to the species. Their vegetation now becomes slower, and the quantity of air is increased even during the night; then, when the leaves begin to fall, all the plants are buried to a depth covering the pots, in beds prepared for them. Laths are fixed to stakes buried in the beds, to which the branches are attached, so that the wind can neither agitate nor break them. On this plan the wood becomes completely ripened, and the plants are then ready for sale. They are usually sold to persons who force them during the following winter in such a manner that these slips bear fruit eighteen months after having been planted.

A few words upon the method most generally employed in forcing these young plants will support what I advanced above—that the slips produce fruit at the period mentioned. The greenhouses commonly used for the purpose are of such a slope—the back wall so much higher than the front one—that the frame presents its incline to the full power of the sun. These kinds of greeenhouses are so much beneath the level of the ground that the higher wall does not rise above it more than from

twenty-four inches to about a yard.

The flues circulate in front of these houses. A shelf placed about six inches above the principal flue serves to support the pots. These preparations finished, the place is gradually heated up to about 60° or 70° Fahrenheit. The pots and flues are frequently wetted, and the upper flue is also often provided with a gutter kept constantly full of water, so as to disengage a vapour which, applied to the sides of the pots, excites vegetation. When the plants begin to bud, a little air is admitted in suitable weather. Openings made in the back and front walls, and closed by shutters, permit the entrance of air, while cold winds are excluded. When the shoots become long enough, they are trained upon the iron rods running along the sides of the frame. The remaining cares consist in nipping off buds, if required, and the necessary waterings, using water as much as possible of the temperature of the forcing house, which must be kept some degrees higher in the day than at night.

After five or six months of this culture well carried out, the grapes, according to the variety and the period at which their forcing commenced, begin to ripen. The wetting of the flues, etc., is then diminished, and more air given up to the time of gathering the fruit. Once this is over, many persons do not retain the vines, which,

to their ideas, are then entirely exhausted.

Vines thus reared frequently produce, notwithstanding the smallness of the pots, grapes of good size, bunches weighing a pound or more being not uncommon. It is true that liquid manures, which need so much care in their successful employment, are much used in this culture.

These facts explain why this mode of cultivation is in such great repute among our neighbours, for it is not rare to meet in England with establi-hinents that each

year obtain from two to three thousand plants for the purpose of forcing.

FRUIT TREES ON POOR SOILS.—On a barren and shallow soil, pears crack, and come hard and rough; apples the same, more especially in dry seasons. Where such is the case, the trees should be treated liberally. Deg up with a fork the ground above the roots, and give at intervals during the spring several dressings of fowls,' pigeons,' or pigs' dung, so that it may be washed in by the rains; and as soon as the sun becomes powerful in May or June, mulch over the ground so manured with short stable litter, seaweed, or something of the kind, and in dry weather see that the trees are well watered, not by a can or two of water, but by bringing the water-cart under the tree and there emptying it. If this treatment were applied to trees on the quince, paradise, and other dwarfing stocks, when they happen to be planted on shallow and dry soils, there would be no room for the complaints which we sometimes hear that "the fruit cracks."

A FINE VINE.



NE of the most remarkable vines we have ever seen is now in full bearing in Kaye's Nursery at Finchley. It is not so large as either the Hampton Court or Cumberland Lodge vines, much smaller, in fact; but in point of size of bunch neither of these, nor any other vines we are acquainted with, approach it. The Cumberland Lodge

vine is considerably finer than the Hampton Court, and bears about 2000 bunches, looking meanwhile as if cribbed and confined for room, as the shoots reach the extremity of the great house, and are there cut off, just as we are obliged to do in small vineries; but one of the Finchley bunches is as large as three of those we have seen at Hampton Court and Cumberland Lodge. The fact is, the vine may be grown to a fabulous size if supplied with all the root room it can occupy, and a suitable soil, and with house-room, so that there is not so much of the remarkable about those two famous vines; but the Finchley vine, while extraordinary as regards

size, is still more so, as we have said, for the size of its bunches.

The curious part of the matter is that no unusual pains were spent upon the making of the border in which this fine vine grows. It is made on a hard clay bottom, a considerable quantity of brick rubbish being placed on that part, with a slope to a drain at the front of the border, which is about 15 feet wide. It is not quite raised above the level of the surrounding ground, as most borders are with our great growers. The soil of the border is not that epicurean kind of loam recommended by most writers on the vine, but just the top spit which had been cleared off building ground in various parts of the district-now and then very sandy, occasionally of a stiff and unctuous clayey texture, with here and there a lot of brick rubbish; in short, a mixture of the better kinds of earth and rubbish which are so easily obtained in a suburban or other district where much building is going on. The border is about four feet in depth. No manure is mixed with its ingredients, except what little may descend from the remains of the annual winter covering of stable manure with which it is protected during the winter and early spring months. The house is 89 ft. long by 18 ft. wide, span roofed, and heated with hot-water pipes. The vinc enters at the middle of one side, and goes across the roof, making five equal breaks, or, in other words, sending five fine opposite branches to each end of the house, the base of the main stem being of great thickness for a vine which has not been planted ten years. It quite fills the house, and would no doubt furnish three times the superfices it now does if the house and border were sufficiently extended. At the time of our visit it bore about 300 magnificent bunches of grapes, running from 2 lb. to 5 lb. weight each. What struck us as most remarkable was that the bunches were equally fine all over the house, the lowest and farthest extremities of the building exhibiting bunches as heavy and as fine as the highest and most favourable parts. Usually, with ordinary vines, much discrepancy occurs between the bunches on the same rod. It is doubtful if such a crop of heavy bunches was ever before shown by one plant, as however large we may grow the poor Syrian and other grapes, of large bunch but inferior quality, to obtain such bunches as these of the Black Hamburgh, even on a vine of the ordinary size, The attainment of the result we have mentioned by is considered very good work. simple means is well worthy of record. It surely proves that vine culture of the highest character is a much more simple affair than amateurs and many practical horticulturists believe it to be. There are many glass arcade roofs that might be highly embellished and rendered profitable by such a plant as this. If the amateur instead of building a few distinct small houses, would erect a good roomy one, and cover the roof with vines, it would give much more satisfaction than is often attained by those who have not much time or attention to devote to glass-houses. A large span-roofed vinery of the sort might be made to afford a very agreeable promenade in winter, a home for considerable quantities of greenhouse and bedding plants, shelves for early-potted strawberries on each side, room for a fine bloom of chrysanthemums in autumn, and not a few other things for which special structures are often provided. In summer, when the fruit would be ripening, and the foliage occupying the roof, we care very little for the indoor garden, and are usually too glad to leave it, while the plants we have named must, for the most part, be out of doors or in frames.—The Field.

NEW PLANTS.



ATTLEYA DOWIANA, Captain Dow's Cattleya (Botanical Magazine, t. 5618).—Orchidaceæ. This superb Cattleya was discovered by Warszewicz in Costa Bica, but in the course of time was lost. It has been rediscovered by M. Arce, and has flowered in the establishment of Messrs. Veitch and Son at Chelsea. The pseudo bulbs are eight inches to a foot high, much swollen and furrowed. Leaves one on each pseudo bulb,

rather broad for the genus, from a span to a foot long. Peduncle two to six flowered, very stout; flowers very large and gorgeously coloured, the huge sepals and petals being clear nankeen, and the lip purple and velvety, with golden threads radiating from its centre. This superb plant is easily grown, but requires the warmest end of the Cattleya house.

RHAPHIA TEDIGERA, the Torch Palm (L'Illustration Horticole, t. 499).—Palmaceæ. This is an elegant palm, a native of Brazil, where it inhabits the sides of rivers and lagoons, but is rarely found in the forests of the interior. It attains a noble stature, and throws out from the summit of a slender stem a graceful head of plume-like

Dendrobium Charltonii (Hibberd) — This beautiful species has been forwarded to us from Colonel Charlton, of Farm Hill, Braddon, Isle of Man. It bears some resemblance to D. primulinum, but is scarcely so attractive, owing to its less brilliant colour. It is of very free habit; the leaves are about a span long, lanceolate, distinctly ribbed, dull dark green. The flowers are produced in large diffuse racemes, sepals and petals nearly equal in size, their colour pale buff yellow. The lip has a tinge of purplish brown at the base, but is otherwise the same colour as the other parts of the flower. Its free habit is a great recommendation to the cultivator. Unfortunately it is quite destitute of odour. The plant has been named in honour of a nephew of Colonel Charlton, who, like himself, is an enthusiastic cultivator of orchids.

CORRESPONDENTS.

VARIEGATED IVY .- R. T. E., Shrewsbury .- Your ivy is the common variegated Irish, the garden name for it is Hedera Canariensis variegata. The maculata variety is spotted and mottled with greyish amber, and has redder leaf-stalks than the one you send, and it is also more uniform in variegation. H. C. variegata is one of the

most inconstant and variable of all variegated plants known.

FERNS FROM SPORES. - W. J. Mann .- All the ferns in your list are likely to come from spores, provided the spores are good. The simplest and safest way to proceed is to procure a few shallow pans, with bell-gla-ses to fit. Next, fill the pans to half their depth with broken pots or bricks, and then fill up to the rim with stone or brick, pounded to the size of peas, with all the dust, or with a mixture of peat in nodules and stone broken to the size of peas. Having raised many thousands of ferns from spores, we have learnt to value pounded brick and stone as far superior to peat. Sprinkle the spores thinly, put on the bell-glasses, and place every pan in a larger pan filled with water, and then shut all up in a warm and rather dark part of the stove. If you have no stove, put them in the warmest part of the greenhouse. We have used with great success a large copper trough, three inches deep, to stand the pans in, and to keep all together snug. The trough stands on a flue under a stage, and the heat of the water in the trough is usually 80°, that of the top crust of soil in the pans being about 70°. We find this plan suit stove and greenhouse ferns equally well. When the little plants are large enough to handle, we pot them separately, a considerable number requiring only to be lifted on the fragment of stone they are attached to without any actual disturbance of the

Evergreens for Window-Watson.-You do not state distinctly what you wish for in the way of information. You say: "I have a window with an eastern aspect, in which I intend to place places. Would you kindly name a few evergreens that would do there?" These are the very words, and we are puzzled to know what to make of them. If the evergreens are to be out of doors, the best will be Buxus rotundifolia, Thuja Japonica, small plants of Cedrus deodara, and a few neat variegated Hollies. If indoors, the following are suitable—Coronilla glauca, Cytisus racemosa, Olea fragrans. For a nice weeping tree for the position you describe, plant either Sophora Japonica pendula, or Salix Americana pendula. If you want a third name to choose from, Ulmus viminalis is suitable. For a town garden, a neat half-pendulous Laburnum is not to be despised.

P. B. We really cannot undertake to provide the index you propose. It would probably be purchased by only half a dozen persons, and if so would entail a heavy

loss.

Crito.—Your first letter contained a number of queries relating solely to matters of law. It cost us much time to read that letter, and it was set aside with the intention of submitting it to a person skilled in the law for reply. In due time it was discovered that to furnish a categorical reply would be to play the part of legal adviser, at expense to ourselves, for the benefit of a single individual. We respectfully decline to consider the case any further, and refer you to your own lawyer. Your second communication was accompanied with a parcel of leaves of trees. These certainly are in our way, and would have had attention long since if circumstances had permitted. But here again we do not hold ourselves responsible, because we have said again and again that we will not name plants from mere leaves, for the simple reason that it is impossible. We have hundreds of imperfect specimens sent; if we were to labour over them as the senders desire, we should be dead in a few months. We profess to know something about plants, but we avow that we are not conjurors. However, your leaves shall be examined with care as soon as health and time permit, and as far as we can make them out you shall have their names. But we plainly repudiate all responsibility respecting them. In the same parcel was one flower,—the name of that is Carlina acaulis, the "stemless thistle." This is a scarce, curious, and most interesting plant, spreading over the ground a mass of bold leaves like a throne, on which sits a large yellow flower with parchment-like rays. It may be likened to a star on a cushion.

DENDROBIUM MONILIFORME.—J. P. Haslam.—The colours are usually light blue

and white, but there are varieties with pink and white flowers.

PRUNING NUT TREES—A. P.—The reason your trees are barren is probably owing to neglect of pruning. When trees have been thus neglected it requires some years to restore them to fruitfulness. The proper system of pruning nut trees is that which gardeners call "spurring." To restore old trees to bearing, the Kentish method is to select a sufficient number of main branches, sufficiently far apart to admit light to all parts of the tree, and removing all other principal branches by a clean cut at the base. Then the side-shoots are cut off nearly close, leaving only two or three buds to each. But a few side-shoots may be left their full length if they are situated in any part of the head that wants filling up. The next season all the young shoots must be cut off nearly close to the point they spring from, and all strong leaders must be shortened. In the third year of the process several small shoots will arise at the base of the side branches which were cut off the preceding year, and from these shoots the next year's fruit may be expected. The usual time for pruning is February.

BOOKS.—R. B.—Any bookseller can obtain what you want. The Editor of the Floral World does not trade in books or seeds. On the subject of vine culture nothing better than Mr. W. Thomson's book, published by Blackwood, price 5s. On Pines, Mr. D. Thomson's book, same publisher, same price. On roses, nothing to equal the "Rose Book," price 5s. On British Ferns, Moore's Handbook, 5s. On

management of small gardens, the "Town Garden," 3s. 6d.

S. J. Bullenhead. - 1, Cystopteris fragilis; 2, Pteris arguta; 3, Lastrea dila-

tata, perhaps; but being immature specimens, cannot say for certain.

SEEDLING Roses.—Henry Lamb.—The usual way of dealing with rose seed is to put the hips (berries) in sand all winter and spring, to clean the seed from the rubbish, and sow it. But a much simpler way is to beat the seed out, or separate it from the fibrous matter in which it is imbedded, and sow it in the same way as any other seed. As the ordinary method is not the best, we propose to say a few words more on the subject. Suppose the seed left on the bushes till the end of the year,

then let it be gathered and separated, and sowed in pans or boxes, and be placed in a cool frame or pit. The soil should be light and sandy, consisting partly of friable loam, leaf-mould, and quite rotten manure. The seed will germinate in any sort of soil, but it is proper to afford the young plants such sustenance as is adapted for them, that they may be strong from the first. When the plants have three leaves in addition to the seed-leaves, carefully lift them out and pot them separately in the smallest sized pots, and grow them in frames or cool greenhouse with care, shifting them to larger and larger pots as they require it, till they are in 7-inch or 9-inch pots, and keep them in those pots till they flower. The seed pans, or boxes, will afford a succession of plants for months together, as some of the seeds will be much slower in germinating than others. The practice of sowing in the open ground is adapted only for those who grow seedling roses on a large scale. One important matter must be borne in mind, and that is, not to allow them to flower until they have attained some size. We have had seedling roses flower when only four inches high, and in 60-size pots, which of course is an injury to them, and the flowers are no use.

PLANTING PINCUSHION BEDS.—Sunrise.—Single plants such as Bijou geranium, Cineraria maritima, and other striking subjects, may be put in the centres of small pincushion beds without violating good taste, for indeed such a method of using them is usually very effective. In describing the bedding at great gardens you will find that we frequently speak of such beds as having "a dot" of so-and-so. It is good taste to make the dot harmonize with the edging of the bed, that is, if the bed has an edging. Thus, if the edging is yellowish, such as Arabis lucida variegata, a dot of Cloth of Gold, or Mrs. Pollock, is good; if grey, such as Arabis albida variegata, then a grey dot such as Alma or Flower of Spring is good; if silvery edge, such as Cerastium tomentosum, then a silvery centre such as Cineraria maritima (large old plants are intensely silvery as compared with young plants), or Artemisia argentea. Your query is not at all "insignificant:" it is rarely that an insignificant query reaches us.

PRUNING VINES—ALPINE STRAWBERRY.—A. B.—You have pruned yours right enough. There are many ways of pruning vines, but for ground vineries they must be kept to single rods, and there are at the very base of the laterals dormant buds that will make fruit even when the last visible bud is cut away. In any future case you may remember a golden rule to keep vines to close rods, and that is, to leave one bud only of each lateral; no matter how long or how strong the lateral, cut all away but one bud. Probably Schænia oppositifolia may be obtained of Mr. Thompson, Tavern Street, Ipswich; he imports many good things from Swan River. The Alpine Strawberry is a variety of the English wild strawberry, and the best way to enjoy the fruit of it is to raise plants from seed every year, and destroy them as soon as the fruit is gathered.

CUTTINGS IN COCOA-NUT FIBRE.—A. B.—Yes, the cuttings of verbenas, petunias, geraniums, and indeed cuttings of almost any kind, will make roots very quickly in this material. It is one of its peculiarities that it induces the formation of roots more quickly than any other substance in which cuttings can be rooted.

Chrysanthemums.—Miss A.—You will find at page 376 of the December number a list of the varieties that were in the best collections at the London exhibitions. The following are the very best in cultivation: Large Incurved—Abbé Passaglia, Antonelli, Bella Donna, Beverley, Golden Beverley, Chernb, Dr. Brock, Duchess of Buckingham, Florence Nightingale, General Bainbrigge, General Harding, General Slade, Golden Ball, Gloria Mundi, Hereward, Her Majesty, Iona, Jardin des Plantes, John Salter, Lady Harding, Lady Carey, Lady Slade, Mr. Brunlees, Prince Alfred, Prince of Wales, Robert James, St. Patrick. Large reflexed—Alma, Atro Rubens, Beauté du Nord, Chevalier Domage, Christine, White Christine, Golden Christine, Garibaldi, Jewess, Julia Grisi, Julia Lagravere, Little Harry, Madame Poggi, Pelagia, Progne, Titania. Large Anemone-flowered—Empress, Fleur de Marie, Gluck, King of Anemones, Lady Margaret, Louis Bonamy, Prince of Anemones, Queen Margaret, Handel. Pompones—General Canrobert, Bob, Aurora Borealis, Drin Drin, Fairest of the Fair, Helene, Madame Fould, Miss Talfourd, Mrs. Dix, Mrs. Turner, Rose Trevenna, White Trevenna, Solomon, St. Thais, Riquiqui, Pompone Anemones—Antonius, Astrea, Boule de Neige, Firefly, Cedo Nulli, Lilac Cedo Nulli, Madame Montels, Mr. Shirley Hibberd, Mr. Astie, Reine des Anemones.

larger selections of these in the "Garden Oracle," but those named above will be suffi-

cient for most of our readers, and in quality they cannot be beaten.

PLANTS DESTROYED MYSTERIOUSLY .- "In a small suburban garden, much exposed to smoke, all young fresh leaves are eaten away as fast as they grow. Thus the new growth of Canterbury bells, and of most bedding plants, such as Calceolarias, were entirely destroyed, without being able to discover the cause. Can you tell us what is the cause of this ?-A., Liverpool." [All town gardens are infested with vermin to ten times the extent of gardens in the open country; this is owing to the numerous walls, hedges, fences, rockeries, etc., which afford harbour for them. Probably A's. plants are destroyed by wood-lice. One safe method of dealing with the garden will be to occasionally sprinkle fresh lime lightly on the plants and the ground between them. Another plan will be to adopt a systematic method of trapping the destroyers. Clean dry pieces of bark, just as removed from trees recently felled, are good traps, as wood-lice soon collect beneath them, and can be destroyed wholesale. Another good plan is to take a number of small flower-pots and open holes for them, and plunge them to the rim amongst the plants. Into these pots throw a few slices of apple, or potato, or fresh leaves of lettuce, and cover the baits with dry moss. Take up the pots every morning and turn out the contents into a pail of boiling water, and put in fresh baits, and cover with moss as before. If snails and slugs abound, a capital system of trapping is to provide some common roof tiles, and with them to cover little heaps of fresh brewers' grains. Take up the tiles every morning, and the snails and slugs will be found rioting in a most happy manner in the treat provided for them.

CHARCOAL IN Pors.— W. M. W.—It is a very good plan to use charcoal in place of potsherds as drainage for pots, and you may use them again and again, any number of times. It would be well, perhaps, to strew them on a clean pavement, or wherever they can be fully exposed to the weather for a week or so after they have been in use some time. Charcoal never becomes thoroughly corrupted, for it has the property of decomposing the gases it absorbs. We cannot say which is best for hedging, Baron Hugel, Harry Hieover, or Indispensable, because we are not acquainted with the last named, and the other two are so different that one would be best in one case, and vice versa. Baron Hugel has a very black zone and bright scarlet flowers, with white eye; Harry Hieover has green leaves, a wiry habit, and

orange-red flowers.

VINE DISEASE.—J. A. C. Harleston.—Yor grapes did reach us, and we remember them well. But did any letter accompany them? We incline to think not. But our remembrance of the case prompts us to suggest that your Muscat vines are too cold at the root to do any good. We should regard all sulphur dustings, and all other applications of nostrums to the leaves, or any other part of the upper growth, as useless. Probably this is a good time to consider the state of the roots, and if you will let us know what sort of border the vines are planted in, we may be able to advise you advantageously. As an à priori judgment, we would say that if the roots are in an outside border, it is but rarely you can have a crop of ripe grapes, for Muscat of Alexandria requires as much heat as any grape grown.

CAMELLIA HOUSE.—J. R. C., Taunton.—The plan you propose will answer admirably. Camelias do not want much heat, and at the time they are growing freely the season is advancing to help them. You could see good collections at Messrs. A. Henderson and Co., Edgware Road; Messrs. Veitch and Son, Chelsea; Mr. Fraser,

Lea Bridge Road; Mr. B. S. Williams, Holloway.

Hardy Herbaceous Plants.—C. C.—The O'Shane's boast was a mere burst of jocularity, and by no means inappropriate, in reply to a certain observation made by Mr. Williams. It is true, however, that the O'Shane (who has another name), has had the management of one of the best collections of hardy plants ever formed in this country, and has studied them with an earnestness and success scarcely to be paralleled. He is now on the Continent, and we shall probably not hear from him for some time to come. We think it well that the discussion between him and Mr. Williams should now close, but we shall always be glad to hear from Mr. Williams, and have much enjoyed his communications.

*** An Admirer of the Floral World will be glad if any of its readers can introduce him to a copy of the Editor's work, "Rustic Adornments," fourteen shilling edition. [The inquirer is Mr. J. S. Smith, of High Street, Huntingdon.]

THE FLORAL WORLD

AND

GARDEN GUIDE.

MARCH, 1867.

COLLECTING AND SELECTING.

MATEUR cultivators who are not bound hand and foot to the delusions of the bedding system, find exhaustless

amusement in collecting representatives of various families of plants adapted to the means at their command for keeping and cultivating them. Where the bedding system reigns in its full severity, this is impossible, for greenhouses, frames, and nursery beds are all filled to overflowing with the monotonous round of subjects that are to be planted in May, that are to bloom in July, that are to be ragged in September, and that are to be housed in October, leaving the places they occupied empty and cold till May returns again. Collecting allies horticultural recreation with botanical science, affords scope for the exercise of thought, and occasionally quickens inquiry and research; it instils into the mind a larger knowledge, and into the heart a warmer love of plants than is possible where the garden is kept as a place for a mere display of colour during three or four months of the whole year. It is next to impossible to avoid collecting when an interest has been created for certain forms of vegetation. The lover of ferns is always in want of certain species and varieties; the cultivator of succulents, of bulbs, of hardy herbaceous plants, of choice trees and shrubs, finds that his possessions are so many keys to the vegetable kingdom, and at every advance of knowledge accomplished by their aid, he learns how many more interesting and beautiful plants there are in the world which he has not yet obtained, and which he would rejoice to possess. Collecting is, in fact, an exciting pursuit, and we could sooner forgive a man for wasting his substance

in riotous gardening, when this passion had seized him, than if he were under a geranium or verbena spell, revolving only amid half-adozen species of plants, and deriving no higher pleasure from his garden than repeating upon its surface the designs he is already tired of in carpets, chintzes, and wall-papers. For the public promenade, as for the great garden, where there is room for everything, and ample means to boot, good bedding is one of the necessities of the decorative part of horticulture; but in the small garden, which is

VOL. II.-NO. III.

like an extension of the drawing-room, or a sort of outdoor parlour, something more is wanted than daubs of yellow and red, which,

"Like the borealis race,
Flit ere you can point their place."

We want entertainment the whole year round, beauty for the eye, and with it fragrance, agreeable associations, variety, and something to engage and interest the mental faculty. In place of the scrubby evergreens that are tolerated-because the bedding, like the Dragon of Wantley, swallows up everything but itself—we ought to see in private gardens a considerable variety of the most beautiful shrubs and trees, deciduous and evergreen; the first so various in form and leafage, and many of them so magnificent when in flower; the second warm and rich in the depth of winter, making the place look like home, so that a glance from the windows neither chills nor repels, as must be the case when a person of any taste looks out upon a dreary parterre that is known to be of use only in the height of summer, when mere colour is least wanted, and when, in many cases, the family are away, and see nothing of it. And in the borders in advance of the trees and shrubs we should see mixtures of all kinds, spring flowers in abundance, and in all the delightful variety in which they may be obtained, the gems of the vegetable creation that appeal to the pleasantest memories, and in their subdued and refined colourings seem to be almost musical in their speaking prettiness. And for summer and autumn, and even for winter, the hardy plants comprise myriads of fine subjects, some showy enough even for a vulgar taste, but many more beautiful in the true sense of the word, with grace of form and delicate harmonies of tintings, and characters so individual, that every one deserves to have a history, and to have that history told to all admirers. And when winter comes again, the variegated-leaved and berry-bearing shrubs that are within the reach of English cultivators would suffice to effect an apparent change of climate. It is enough for us to be frozen today and roasted to-morrow in this wayward, changeable, ungenial, unfriendly clime; we need not make our gardens lugubrious to increase the horror; yet this we do, and only at rare intervals do we meet with examples of what English gardens might be in warmth, cheerfulness, richness, and variety, even in the very depth of such winters as make havoc of human lives. Our ten years' repetitions of such arguments as these may, for all we know, have somewhere produced an effect by this time; but whether there be results or not, we shall probably continue, as occasions offer, to direct the attention of our readers to the undeveloped resources of ornamental gardening in this country, and do our best to point out the several subjects that are best fitted to make our gardens worthy of the spirit and the means and intelligence of the English people.

We begun with remarks for collecting, yet we should hope that very few of our readers are devoted to the profitless task of indiscriminate gathering together of the members of any family of plants. It is not every member of the vegetable kingdom that is adapted for cultivation in gardens, and amongst the most beautiful and

useful species and varieties some are better than others, and the wise man will, if possible, select the best and leave the rest to nature. As for ugly plants—and there are such—they are generally relegated to the botanists, which is a form of sarcasm founded on the too often professed admiration of would-be botanists for things that persons of taste find nothing in to admire. Far better than collecting is selecting, and in this amusement we are constantly endeavouring to assist our readers, by directing attention to the best species and varieties in the several classes of plants that are adapted for the embellishment of our gardens. Hardy plants would never perhaps have been at a discount, as they have been for many years past, if cultivators of them had taken care to sift out the best and toss the rest to limbo. No one, for example, amongst the uninitiated, would care to grow Michaelmas daisies, after having seen an ordinary mixture of them in an old-fashioned border, for a considerable proportion of the immense number of species entered in the books are rubbish, their ragged weedy look is completely matched by their miserable flowers; so of many other families, yet the true collector can pick out a few that perhaps are unparalleled for beauty, and if amateurs would grow only what is good, they might serve the cause of art in this direction; for good herbaceous plants, and indeed good shrubs, good bedders, recommend themselves when seen, and bring into good repute the classes they belong to. Those who grow ugly plants do harm to horticulture, and the very many ugly things that have been tolerated and that are tolerated in English gardens, make it appear to the passing crowd that in geraniums, calceolarias, and verbenas alone are beauty and interest to be found.

SUB-TROPICAL PLANTS FOR THE CHOICE GARDEN.

BY KARL PROSPER.



AVING brought under the notice of the reader selections of noble habited plants that may be safely and expeditiously raised from seed, I shall now direct attention to a few others that cannot be so produced, or that it is not desirable to seek or obtain seeds of.

CALADIUM.

From this genus we obtain a selection of plants of most distinct and noble aspect for the English gardens. In warm sheltered districts in the south of England there can be no doubt that our exhibition caladiums, those gorgeously-coloured plants that elicit the astonishment of the spectator unused to beholding the wonders of the vegetable kingdom—there can be no doubt that these might be planted out and would thrive well. But let our test for all the southern parts of England be the results obtained at Battersea Park, where last summer Caladium esculentum was largely planted, and made some of the most remarkable beds ever seen. One bed, 45 feet long by 6 feet wide, was a mass of these noble leaves, some

of them measuring $2\frac{1}{2}$ to 3 feet in length. It is perhaps only as isolated specimens that they will be planted in private gardens; I confess I am not at all anxious to see great beds of them in small places. The bed selected for any of these plants should consist of light rich earth, if containing a considerable proportion of turf all the better. It should also be deep and moist. The end of May, or even the second week of June, will be early enough to plant, but this must depend on the weather; in a forward season they might be put out in the middle of May. It must be remembered that they produce an effect at once, so they may well be kept under cover until all the ordinary bedding is finished, as they will all the time be increasing in size.

C. esculentum.—The most robust of all; it produces huge cordate leaves a yard long, and of a fine sombre green colour. Planted singly or in small groups, it is a most noble subject. The roots must be taken up in the autumn and placed in dry sand, and kept dry and safe from frost till March; then to be started to grow in a light

rich soil in a moist heat of 70'.

C. euchlorum.—This is a very fine species, with large leaves of a deep green colour. Four or five plants put a yard apart make a beautiful group. Take up the roots in autumn, keep them in sand all winter, and start in heat in March.

C. cucullatum.—The grandest and most fast growing of all, but a trifle more tender than C. esculentum, and therefore not likely to

do so well if the season should not be favourable.

C. violaceum.—A pretty small-growing kind, with purplish leaves, well adapted to make an edging to large beds of caladiums, or to mix with other plants in flower beds.

HARDY AND NEARLY HARDY PALMS.

It is not exactly a new discovery that many palms may be placed out of doors for the embellishment of the English flower garden, but attention has only lately been seriously drawn to the subject, and I venture to believe that my humble pen has contributed somewhat to this happy result. It should be known far and wide that one of the noblest palms in the world, Chamarops Fortunei, is quite hardy in the southern districts of England, and that there is a superb specimen of it five feet high planted out on a bank in the Royal Botanic Gardens, Regent's Park, and which has braved the winters unprotected for seven years past. Of all the sub-tropical plants adapted for English gardens, Chamerops Fortunei, or Fortune's hardy Chinese Palm, is perhaps the most truly valuable, because it may be planted out like a Yucca—and what a grand companion for winter effect to Yucca recurva !- and remain a permanent ornament and one of the most dignified forms of vegetation it is possible to imagine. With the exception of this species, which may be planted out in a sheltered spot in any garden south of Nottingham, the palms must be used as temporary occupants of the parterre, and the safest way to deal with them is to plunge them in their pots. To grow a collection for the purpose does not demand a great outlay, or long tried skill. The selection should be confined to such as are nearly hardy, and of which a list is given below. All these plants thrive in a good loamy soil, containing plenty of fibre and siliceous grit, and they are grateful for the addition of a small proportion of quite rotten manure. It is necessary to repot them every year, but they need not always be put into larger pots; in many cases the same pot will do several seasons in succession, but the process of repotting is intended to provide them with a change of soil. When this repotting is performed, they should be turned out of their pots and a good deal of the old soil should be removed from their roots; they should then be placed again in the same pots, or in pots a size larger. If the old pots are used let them be well scrubbed, or, if they can be baked for an hour—a thing convenient enough in some gardens—it will render them quite sweet for the use of the plants again. The potting must be done with care, and a few nodules of charcoal should be placed over the crocks. This is one part of the treatment about which there is no mystery. Another part is to give them abundance of water while growing; that is easily done, but if it is not done the growth will be poor, and the plants will decline in beauty. The third and last point is to house them in October in a light airy house, where there is heat enough to keep out frost, and there treat them as other greenhouse plants are treated, especially in respect of giving water, for the colder the weather the less they During the recent severe weather some plants of Latania Bourbonica and Chamærops humilis have been subjected to 8° of frost, but are quite unhurt. At the same time, I would defend the greenhouse palms from frost if possible.

Chamærops Fortunei.—A grand palm, quite hardy in the southern and western parts of England. It should be planted in a sheltered spot, to protect its leaves from damage by winds; and, if possible, on a slope, to prevent injury by lodgments of water during winter. Any good soil will suit it; the fine plant at Regent's Park is in a

very bad sample of London mould.

Chamorops humilis.—This very handsome "fan palm" is invaluable for the conservatory and for plant cases. In cultivation it needs only one care, and that is the most perfect drainage, for if for any length of time soddened with water it will die. It is so abundant in some parts of Algeria as to prevent the cultivation of the land, for the rude ploughs of the Arabs are unable to cut through this "weed." The Algerian farmers have lately discovered how to remove it, and that is by flooding the land with water; so irrigation, which is needed for the rice and other crops proper to the climate, will effect a clearance of this weed from the soil.

Chamærops excelsa, C. Ghiesbreightii, C. sinensis, and C. tomentosa, are also good palms for the flower garden, and to keep through

winter in a greenhouse.

Latania Bourbonica.—This magnificent palm is so nearly hardy that it is one of the first that an amateur in love with such things should purchase. It is very cheap, and grows sufficiently fast to make a specimen in a few years.

Areca Bauerii and A. sapida are two species of "cabbage palm,"

well adapted for the summer garden, and needing a warm greenhouse in winter.

Brahea dulcis and B. nobilis are fine palms from Mexico, nearly

hardy.

Chamædorea atrovirens, C. elegans, and C. Verschaffeltiana need the warm greenhouse, yet are pretty hardy. Give them a rich soil, say one-fourth, or even one-third well-rotted manure, and abundance of water all the summer.

Cocos australis and C. campestris are two of the cocoa-nut palms, extraordinarily beautiful, and easy to keep in a cool house all winter.

Corypha australis, a pretty fan palm, and a good companion to Chamerops humilis. Grow it in a mixture of peat, yellow loam, and silver sand, equal parts of each. It is well adapted for the dinner-table.

Phonix dactylifera and P. humilis are hardy species of the date

palm. They will be satisfied with greenhouse treatment.

Sabal Adansonii, S. palmetto.—The first of these is a remarkable plant, well adapted for the dinner-table or the window, as also for a fine vase in the garden; indeed, it is one of the best uses of the palms out of doors to put them in urns and vases, a grand change from the cauliflower shaped crowds of flowers we usually see in such receptacles. Try a fan palm in a vase, bedding the pot in green moss, or even in cocoa-nut fibre, and, unless you have already studied this matter, the result will be a discovery, a new pleasure, a surprise, a sensation, a new key to the kingdom (or queendom) of beauty. The Palmetto palm was a distinguishing ornament of the tropical department of the Crystal Palace, previous to the late disastrous fire. Many readers will remember that it stood at the extreme end of the building, on a raised circular bed, which was surfaced with Lycopodium. Recall its appearance, and then in imagination transfer it to the garden, and you will have some idea of the sort of decorations that are possible in England.

Seaforthia elegans.—An elegant but decided y rustic plant, comparatively hardy. S. robusta is eminently handsome, and an in-

teresting palm.

Thrinax parviflora is a good representative of this genus for the parterre.

TENDER PALMS.

Caryota urens.—This is the "wine palm;" very distinct in habit, well adapted for sub-tropical displays, and needing a cool part of the stove or intermediate house all the winter.

Chamædorea elatior.—A fine Mexican palm, which appears to need a rather warm berth all the winter; but, when plunged out for

the summer, does well.

There are many more that will serve the same purpose, but it is not desirable to enumerate all that can be thought of. The general opinion is that palms are too costly for any except the wealthiest cultivators. This is a mistake, for a collection of small specimens showing the respective beauties of each may be obtained for a few pounds. For example, I have lately received from Messrs. Hooper

and Co., of the Central Avenue, Covent Garden, London, a circular announcing cheap plants of the following: Chamerops humilis, Cocos australis, Cocos campestris, Corypha australis, Latania Bourbonica, Sabal Adansonii, and Sabal Palmetto, the prices ranging from 3s. to 10s. each, or one plant of each all round (seven in all) for 2ss. Now, with palms at such a price, who can resist the temptation to infuse this new, this superb element into the system of decorations of the English garden? I shall not attempt to reply, but shall be content with having pointed the readers of the Floral World to a region of beauty that perhaps many of them have not dreamt of before.

A FEW OF THE MOST EFFECTIVE FLOWERING BEDDERS.

HERE are so many thousands of varieties of bedding plants in cultivation, that amateurs may well be perplexed in attempting to make choice amongst them. Having for many years past made it a practice to visit and carefully inspect all the great parks and gardens where

bedding is carried out with the greatest spirit, and having several large families of bedders always under my eye, I can, perhaps, as well as anybody, direct attention to a few of the most useful bedding plants obtainable for gardens. Something towards this was attempted last month, in the short scrap on variegated-leaved bedders (p. 49). I shall now enumerate a few of the most telling flowers.

CALCEOLARIAS.—Bird of Paradise and Canariensis are the two best in cultivation, not only for effect, but for withstanding the various assaults to which calceolarias are subjected when planted out, especially drought. Some of our readers may remember an account we have somewhere given of an experiment with calceolarias. They were planted in a mixture of one-half mellow loam and the other half thoroughly rotted manure. They grew luxuriantly and flowered superbly, and continued good till far into September. This was last year (1866), when there was a general failure of the plant, and many gardens were completely spoiled in respect of colouring by the loss of yellow. The following are also good:—Aurea floribunda, dwarf and bright; Tom Thumb, gold yellow, very dwarf; Prince of Orange, brownish orange; Amplexicaulis, tall and pale yellow. This last is of great value when skilfully used; if required to be dwarfed, it may be pegged down.

Dahlias.—The following are the best four bedding varieties:—Queen of Whites, the best white; Duke of Newcastle, yellow; Scarlet Tom Thumb, scarlet; Crimson Gem, fine crimson. It is impossible to have dahlias in flower early in the season; to do them well requires ample space, an open, sunny position, and a free but

not over-rich loamy soil.

GERANIUMS.—The best Scarlets are Cybister, Black Dwarf, and Kate Anderson. The best Pink are Christine and Wiltshire Lass. The best Red are Rebecca and Lady Middleton. The best Salmon

are H. W. Longfellow and Eugenie Mezard. The best Crimson are Rival Stella (this has plain green leaves, and flowers very abundantly; it is every way first-rate), Le Grand, and Crimson Queen. The best White is White Perfection. The following new varieties are splendid in quality, and should be secured as quickly as possible by all cultivators of bedding plants:—Duchess of Sutherland, rosy purple; Lady Constance Grosvenor, brilliant orange scarlet; Christine Nosegay, true Christine colour, and habit similar to Stella; Warrior, rich scarlet.

Variegated-leaved Geraniums.—The best White-edged are Flower of Spring and Silver Chain. The best Creamy-edged are Variegated Stella and United Italy. The best Gold-leaved are Cloth of Gold and Luna. The last-named is richer in effect than Mrs. Pollock, and very much easier to multiply and manage. For abundant flowering, and tolerably good variegation, Variegated Nosegay is

worth having; the flowers are a cheerful rose-pink colour.

PETUNIAS.—Loveliness, blush with red stripes; Ariel, white with purple stripes; Chancellor, blush barred with purple; Nellie, pure white striped crimson; Purple Bedder, fine purple. Petunias

require a fresh, light, rather rich soil.

VERBENAS.—Albert Tellandier, intense carmine; Fire Brigade, crimson scarlet, withstands drought, and will thrive in a poor soil; Azurea superba, cobalt blue; Junius, deep orange, a very curious variety, quite good and capable of important services; La Grande Boule de Neige, the best white; Lord Clifden, scarlet; King of Bedders, crimson red, fragrant; Lord Raglan, carmine.

TROPEOLUMS.—The "compactum" section comprises some eminently useful varieties, far in advance of all others as bedders. The best are Compactum Luteum improved, yellow, with numerous spots; King of Scarlets, Scarlet Gem, and King of Spots, yellow and

amber.

Convolvulus Mauritanicus.—The habit of which closely resembles that of our little native wayside convolvulus; the flowers are a charming shade of lilac. It is not a showy plant, but intensely

pretty, and a capital relief to garish colours.

GAZANIA SPLENDENS is undoubtedly the best of the Gazanias, and a truly splendid bedder. It will flower well in a poor sandy soil, but it must have a sunny position. The charming contrast between its bluish and half glaucous foliage and its splendid orange flowers, is most delightful.

HELIOTROPES.—Beauty of the Boudoir and Miss Nightingale are

the best of this class for beds.

Lantanas.—These are rather tender, and require a hot season to bring them out well. On cold damp soils they are of little use. The most generally useful are Fulgens mutabilis and Crocea superba.

NIEREMBERGIA GRACILIS makes a charming mass of pretty

white flowers, to tone down the effect of strong colours.

ENOTHERA PROSTRATA makes a capital yellow bedder on cold damp soils. S. H.

THE ART OF INCREASING PLANTS BY CUTTINGS.



Y far the greater proportion of plants that are multiplied by cuttings require artificial heat. Nevertheless, cuttings of many tender plants may be struck in the open ground, or in pots and in frames, without heat, and in every case the mode of procedure is nearly the same.

The object of this paper is more particularly to put beginners in the way of spring propagation, a branch of horticultural practice which has acquired immense importance since gardening has become contracted to an almost exclusive adoption of the bedding system. Very much of what we have to say will be applicable to summer propagation without artificial heat, though our business is more directly with the propagation of plants at this time of year by means of the heat of a tank or a dung-bed. We suppose the heat to be sufficient and constant. If from fermenting material, there should be a large body of it in a nicely-tempered state, there is nothing so good as a tank, for the operator has thus complete command over his work, and can enjoy the comfort of a warm house while attending to his duties. As a rule, a bottom-heat of 60° to 70° will suffice for all kinds of bedding-plants that are struck from cuttings. A temperature of 80° to 90° may be used by persons who have had much experience, but 70° should be the maximum for beginners.

How to Obtain Cuttings.—As a rule, plants to be propagated from at this time of year should be in a free-growing state. We

advise placing old plants of verbenas, petunias, etc., in a moist heat, in order to start them for cuttings, because the best cuttings are those of shoots newly formed, and the worst those from shoots of last year. Indeed, these latter are of no use at all, except in the hands of the professional propagator, and he would never choose them while young shoots were obtainable. If the plants are not freely growing therefore, the propagator must wait for them; and to promote free growth, the temperature of the house should be kept at from 60° to 70°, with a moderate amount of atmospheric moisture, and as much light as possible, so that the young shoots will be of a healthy green, and with short joints. But at this time of year, the plants the amateur intends to



cut from will be for the most part full of young shoots, and the removal of a crop of these will cause the plants to throw out more, and the question arises, how are the cuttings to be made?

Suppose we look over a lot of fuchsias now, we shall find them full of little stubby side-shoots all ready to hand, without demanding any particular skill to remove them. Select one of these plump shoots, of an inch or an inch and a half long, press the thumb against it, and it will snap away "with a heel"—that is, with a thickened base, the separation taking place at the point where it issues out of the old wood. When you have removed it, it will probably have such an appearance as in Fig. 1. All that this requires for its preparation is to remove the bud which has just



started near the base of the cutting, so as to leave a sufficient length of clear stem to insert the cutting in sand firmly. When so inserted, and kept moist, warm, and shaded, roots will soon be formed at the base, and as soon as the roots have begun to run in search of nourishment the top of the shoot will begin to grow, which is the sign for potting off. But suppose we have a chrysanthemum instead of a fuchsia. This will have a mass of tender shoots rising from the root, and there is no need to seek to take these off with a heel. With a knife, a pair of scissors, or the thumb-nail, remove a small shoot of not more than three inches in length

-two inches will be sufficient. This will probably have some such aspect as in Fig. 2. All the preparation this requires is the removal of the lower leaf, to make a sufficient length of clear stem for inserting it in silver sand. Or suppose we have a hard-wooded plant of robust growth, and which is known to be easily rooted, then we may venture to take a still larger cutting. Here is a side-shoot of Veronica Lindleyana (Fig. 3); it consists of four joints, is young, the wood not yet hardened, and needs no preparation at all, because there is a proper length of stem for its insertion. But in the case of plants having large fleshy leaves, it may sometimes be needful to crop off half of every leaf except those next the top bud; but, as a rule, as many leaves should be allowed to remain as possible, because the more leaves that can be kept alive while the cutting is making roots, the quicker will it become a plant. No definite rule can be given on this head to guide the inexperienced. It all depends upon how many leaves can be kept alive. If the cuttings are to enjoy a brisk heat, say 70°, with plenty of atmospheric moisture, then nearly all the leaves may be left entire, and especially if the cut ings are in a close propagating frame, or under bell-glasses. But if they are likely to be exposed to draughts, if they are placed in pots or pans in an ordinary greenhouse, and thus much subjected to evaporation, the leaves must be reduced in number, and all the larger ones must

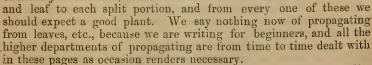
be cut half away.

Another matter of importance in making cuttings is to determine whether they are to be rooted from a joint or not. Most cultivators prefer to cut the shoot close under a joint, so as to obtain roots from that joint. But there is no occasion to cut to a joint; any and every one of the plants ordinarily propagated at this time of year will root as quickly from the "internode"—that is, the portion of stem intermediate between two joints—as from the joints them-

selves. This is of great importance when cuttings are scarce, as a shoot will often furnish half-a-dozen cuttings, if taking them at a joint is of no consequence; and only one or two, perhaps, if taking them at a joint is imperative.

The size of the cuttings is a matter of great a importance. As a rule, the smaller they are the better. Still, if very soft, many may damp off unless

very skilfully handled, so the amateur must secure them moderately firm. Three or four joints will generally suffice of most things, or say nice plump shoots of from one to two inches long. If young side-shoots are scarce, longer shoots may be cut up in lengths of three joints; and if it is a question of raising the largest possible number of plants from the fewest cuttings, then one joint and its accompanying leaf will suffice. Suppose we have a shoot of a verbena placed in our hands to make the most of it; we should first cut it into as many lengths as there were joints, leaving each leaf untouched, and to every joint as much stem as could be got by cutting just over instead of just under the joints. Then with a sharp knife we should split each of these joints in half, so as to have one bud



POTTING THE CUTTINGS .- The most convenient way of dis-

Fig. 3.

posing of the cuttings is to dibble them into shallow pans filled with wet silver-sand, as fast as they are prepared. The best way for those who may have to leave the cuttings in the pans for any time after they have formed roots, is to prepare the pans with crocks for drainage, and over the crocks to spread an inch of chopped moss or peat torn up into small shreds, or cocoa-nut fibre dust, and then fill up to the brim with clean silver-sand. The sand should be quite wet when the cuttings are inserted; and when they have been regularly dibbled in with the aid of a bit of stick, or with the fingers only, it should be placed where there is a bottom heat of 60° to 70°. A temperature of 80° is allowable when time is an object, but at 60° better plants may be grown; in fact, there is generally too much heat used. From the time of putting the cuttings in heat till they begin to grow, the temperature must be steady, and there must be regular supplies of water. But water given carelessly will surely entail losses. Probably the sand will retain sufficient moisture for eight or ten days, without needing to be wetted beyond what reaches it in the process of dewing the leaves. To dew the leaves neatly and timely is one of the most important matters. For the amateur to whom a few minutes is no object, the best way is to dip a hard brush in water, then hold the brush beside the cuttings, and draw the hand briskly over it. This causes a fine spray to be deposited on the leaves, to prevent flagging; but if the water is given from the rose of a watering-pot, the cuttings, if small, may be washed out of their places, or may be made too wet.

Maxims on Propagating.—The more heat, the more moisture may be allowed, and, vice versû, the less heat, the less moisture. Hence, if the heat of the dung-bed declines, or if there come cold weather, at once reduce the supplies of moisture. On the other hand, give water freely if the heat is steady and the cuttings are beginning to grow, which is invariably a sign that they have roots.

Pot them off as soon as possible after they have formed roots. In potting, be careful not to break the newly-formed roots. No matter what the plants are, the soil at the first potting should be fine, and with a considerable proportion of silver-sand added. Generally peat and leaf-mould answer admirably as a staple for potting newly-struck cuttings.

Pot in small pots; there is nothing gained by putting the young plants in large pots at first; the soil gets sour before they can root into it. When a few cuttings are struck in common pots, place

them next the side of the pot all round.

If the heat can be regulated at will (as in propagating by means of hot water), begin at 60°; after three or four days, increase the heat 5°, in three or four days another 5°, and so on, never passing 75° or 80°, and better to stop at 70°. Too quick a growth results in weakness to the plant.

Cuttings damping off may often be saved by sprinkling silver-sand or peat-dust previously dried in an oven, over the surface of the pans. If mildew appears, give air, and dust the leaves with

sulphur. Whenever damp breaks out, increase the heat, and give more air.

Do not keep cuttings shut up close any longer than can be helped. Give air as soon as they are able to bear it; of course, very

little at first, and with great care not to chill them.

After potting, place the pots in bottom-heat, if possible, to promote the formation of fresh roots. Never shift till the first pots are full of roots; then shift without delay, and use the compost proper to the plant.

S. H.

CULTURE OF THE GLOBE AMARANTHUS.

BY J. CALVERT CLARKE.

HESE are generally catalogued as half-hardy annuals, but they are extremely tender for that class of plants; but for indoor decoration they are desirable subjects, and the fact that they are everlastings makes them still more desirable, as when they are cut at the proper time they will last in good condition for bouquets up to Christmas, and later. But apart from these considerations, it is equally important

later. But apart from these considerations, it is equally important to the gardener that he should have variety. It would be no difficult task to make a display even with only one or two members of a genus. But there would be about such an arrangement so much sameness, that it would have no attraction even for people indifferent about flowers. Therefore, to carry out this system of gardening with any spirit, it is essential that as great a variety as possible should be got together, and the Globe Amaranthus is well worthy to join the ranks. There are, I believe, as many as six colours amongst them; but, for myself, I consider the four following colours all that are desirable to grow: - White, Red, Golden, and Fleshcolour. To flower in August and September, they should be sown in light sandy soil, about the end of March, on bottom-heat. When the plants are large enough to handle, prick out three round the rim of a 60-size pot, in a soil composed of loam, leaf-soil, and rotten dung, equal parts. For this potting use silver-sand liberally. For the after shifts use river-sand or road-grit abundantly; place them again on bottom-heat for a fortnight; after which remove them to a warm shelf in a vinery or intermediate house. Give them one shift into a five-inch pot early in June, and then remove them to a pit where they can be kept close for a few days. In this structure you can give them liberal culture, as you can give them any amount of air you please, and they require a good deal. You can shade them, if necessary, but, above all, by economizing sun-heat, you can convert your pit into a stove for the time being, and so give them the sort of treatment they require. But here I must leave much of the after-treatment to the discretion of the cultivator, as so much will depend upon the result aimed at as to the number of shifts, etc. But I may remark here, that large shifts are their abomination, and

I can tell you why—because the roots positively refuse to work in a soil that has become soddened and sour round the sides of a large pot. Give them, therefore, small shifts, that they may have a fresh, sweet soil to feed upon, and you may grow them to any size you like, providing you do not overdo them with water when they don't want it. Make a few mistakes in this matter, and you will be rewarded for your pains by seeing the most healthy amongst your plants dwindle away and die. For the benefit of your young readers, I will remark that the chief secret of success in cultivating them is a rich, open, porous soil, and only just as much water as they can appropriate without its hanging about in the soil any number of hours afterwards.

THE DAISY.

ALL hail! to the fairest star of the earth,
The daisy, beloved of old;
So modest and lowly it comes to its birth,
When winds whistle hollow and cold.
In its beauty it shines on the mountain side,
When the furze and the heather blooms glow;
And it glitters in sunshine, and grows in its pride,
Where the water-brooks tumble and flow.

It glows on the bedge bank, and in the green brake,
And under the shade of the trees,
In the clefts o' the rock, where it gleams in the wake
Of the fierce beating mountainous breeze.
In every m-adow, and cranny, and nook,
Where'er there's an inch of soil,
It preaches its homilies better than book,
To the sons and the daughters of toil.

Under Donningtons' oaks, in times of yore,
Old Chancer in joy would recline,
To gaze on the daisy, and drink in its store
Of wisdom and beauty sublime.
For the heart of the poet was warmed into love,
When he gazed on its starlighted form;
And his soul was illumined with light from above,
When he saw it at earliest dawn.

So the bard of the North—the hero of toil,
By its bloom was enraptured and blessed,
Feeling proud that old Scotia's heather-clad soil
Had a gem so endeared and caressed.
With the heart of a man, he could yet shed a tear,
For the blossoms destr yed by his plough;
For it taught him that trouble, and sorrow, and fear,
Must fall on each humble brow.

Then I'll cherish the daisy, the daisy for me,
With its wee little star made of snow;
'Mid the mosses and gr. sses so gaily and free,
Doth it merrily, bonnily grow.
'Tis the flower of home, and 'twill blossom again;
Whatever our fate may befall;
Bringing promise of sunshine and joy in its train,
And a blessing for each and for all.

CULTIVATION OF RHUBARB FOR EARLY SUPPLIES.

BY J. F. M'ELROY.



HERE are various ways of forcing rhubarb, and it scarcely matters what method is adopted; warmth and darkness are the two essentials. It is sometimes stated that rhubarb should be forced in full daylight. This I do not agree with, for that forced in the dark has quite

colour enough, and while it is deficient of the excessive acid which characterizes rhubarb grown in the open air, it has a delicious mild

buttery flavour which every cultivated palate will appreciate.

Many place large seakale pots over the roots as they are planted in the open ground, and then cover the pots with a quantity of hot manure; but the common practice adopted by those who supply the markets is to dig up a quantity of roots, and plant them in ranges of pits, the same being heated by linings of hot manure or hot-water pipes. After they have yielded the required crop, the roots are thrown aside as useless, only selecting such crowns as may be useful for division in the formation of new plantations. The common practice among gardeners, if they dig up the roots for forcing, is to select the largest and oldest; the consequence is, that the stalks, though abundant, are small, and very deficient in general qualities; and very often, when they have done their work of production in the forcing pit, they are again planted in the ground for the purpose of affording a crop in the ensuing year. The plan which I believe will render the most satisfaction, both in its cultivation for open-air production, as well as in its preparation for early forcing, is as follows:-At this period of the year, having prepared a plot of ground that has been well trenched and manured, with a spade divide a root or a portion into separate parts, no matter how small; in fact, the smaller the better, if you but retain a healthy eye to Let them be planted singly, two feet every way. From eyes planted at this season I have pulled stalks in the following autumn, though this plan is advisable only where a quick supply is urgently required, as it would lessen the ensuing year's production by checking their growth. Let the stalks remain till they have fulfilled their functions of aiding in the enlargement of the crowns, after which they will decay. If you adopt annual planting as recommended, on however small a scale, it will be advantageous both in productiveness as well as flavour, combined with earliness and size of stalks; and two-year-old roots will be found to be most preferable for forcing. The following three varieties, as grown by myself, afford their produce in succession as numbered:—First, Prince Albert, fine and very early; second, Linnæus, an excellent flavour, good for preserving; third, Victoria, its principal quality consists in size. As soon as the stalks commence pushing, cover them with pots; it will quicken their growth, and contribute to their flavour and colour. If you have not the latter requisite at your command, lightly cover them with long litter, fixing a stick in to mark the spot, that they may not be trampled on.

ROSES FOR 1867.

BY W. D. PRIOR.

HAT a widely-diffused passion is the love of novelty!
How many blemishes it varnishes over, and how many beauties it discovers which disappear alike before the touchstone of possession. This passion induces our modern ladies, as it did their ancestresses in all ages,

to adopt any enormity of fashion, however outré and unbecoming, provided it is new; and it must be confessed that their brothers and husbands are little behind them in the avidity with which they pursue their hobbies when fresh things are concerned. We of the rose world are especial victims to the impulse of running after and buying new roses, when we already, in most cases, possess something superior, as we discover after we have parted with enthusiasm as well as cash. The season of new roses is now fairly set in, and where the propagation has been early and successful, many of them will soon be in bloom. With respect to these, March is the best month for purchasing, though May is the best, on the whole, for turning out; the interval between selection and planting out, should be devoted to a gradual hardening off of the plants, when few will turn out unsatisfactorily.

The following well-selected list of the continental novelties sent out by Mr. John Fraser, embraces the most promising; if amateurs speculate in them all, it will only be a due encouragement of that

enterprise, without which there can be no improvement.

HYBRID PERPETUALS.

Alba Carnea (Touvais), white, lightly tinged with rose, the under side of the petals pure white, the flowers are of medium size and beautifully formed, habit moderately vigorous.

Antoine Ducher (Ducher), brilliant red, very large, double, and superbly formed,

robust and vigorous habit. A seedling from Madame Domage

Charles Verdier (Guillot père), fine rose colour, with whitish edges, very large, very double, and well formed, habit very vigorous. A seedling from the esteemed variety Victor Verdier.

Comte Litta (E. Verdier), brilliant velvety purple, edged with violet, growth vigorous, flowers large, fall, and well formed, having large undulating petals.

Comtesse Félicie Morguès (Pernet), brilliant rosy red, the centre petals edged with white, habit robust, flowers large and full. A seedling from Victor Verdier.

Eugene Scribe (Gautreau), brilliant dazzling red, extra large, full, and well formed, growth very vigorous.

Francoise Treyve (Liabaud), fine deep shining scarlet, quite a new colour, lage

and double, very vigorous grower.

Gloire de Monplaisir (Gounod), lively red, large double, and of excellent form,

habit very vigorous and free flowering.

Horace Vernet (Guillot fils), velvety reddish purple, shaded with deep crimson, flowers of extra size, with very large petals, making a very effective appearance on the plant, a vigorous grower.

Madame Anna Bugnet (Gounod), tinted white, changing to marbled rose, large,

full, and imbricated, a vigorous grower, producing large clusters of flowers.

Madame Bellenden Ker (Guillot père), superb pure white, medium sized, fine, and double, of moderately vigorous habit.

Madame George Paul (E. Verdier), brilliantly tinted and shaded rose, with whitish edges, large, full, fine imbricated form, vigorous and distinct.

Madame Rival (Gounod), delicate, satin-like rose, large, double, and well shaped, habit very vigorous. A seedling from Auguste Mie.

Madeleine Nonin (Ducher), rose, lightly tinged with salmon, medium sized and

very double, flowers excellently formed, habit vigorous, a fine autumnal rose.

Mademoiselle Annie-Wood (E. Verdier), clear brilliant red, large, very full, and perfectly imbricated, habit very robust, a most distinct and remarkable rose.

Mademoiselle Eleanor Grier (E. Verdier), deep rose, large, full, and of perfect

form, fine robust habit.

Mademoiselle Marie de la Villeboisnet (Trouillard), fine delicate rose, very large, very double, and slightly imbricated, good habit and vigorous grower.

Mademoiselle Jeanne Marix (Liabaud), bright rose marbled with purple, very large, full, and cup shaped, a remarkably vigorous grower.

Monsieur Chaix d'Est-Ange (Leveque), brilliant vermilion red, large, full, and excellently formed, a vigorous grower and profuse bloomer.

Monsieur Noman (Guillot père), delicate rose colour, the edges of the petals being almost white, large and double, a good grower and abundant bloomer. A seedling from Jules Margottin.

Monsieur Thiers (Trouillard), fine brilliant red, large and very double, the outer

petals very regular, those towards the centre slightly incurved, good habit.

Napoleon III. (E. Verdier), brilliant scarlet and deep violet, large and double,

a very distinct and remarkably rich rose, fine robust habit.

Paul Verdier (C. Verdier), magnificent bright rose colour, large, full, and perfeetly imbricated form, vigorous habit, producing several fine flowers on a branch.

Souvenir de Mons Roll (Boyan), fine reddish cerise, richly tinged or shaded, a large and beautifully formed rose, making a vigorous and very effective plant.

Thorin (Lacharme), pure brilliant rose, large, full, and of excellent form, habit remarkably robust.

TEA SCENTED.

Bouton d'Or (Guillot fils), superb deep yellow, reverse of petals white, medium sized double flowers, an excellent variety, with a fine style of growth.

Isabella Sprunt (Verschaffelt), delicate yellow, lighter towards the edges of the

petals, good habit, and very free.

Madame Bremont (Guillot fils), fine reddish purple, varying to deep purple,

large and double, vigorous habit and fine style of growth, very distinct.

Madame Margottin (Guillot fils), fine deep citron yellow with rosy peach centre, the edges of the petals white, flowers of good size, very full, and rather globular; this is a most distinct variety, of vigorous and pleasing habit.

Monsieur Furtado (Laffay), bright sulphur yellow, medium size, very double,

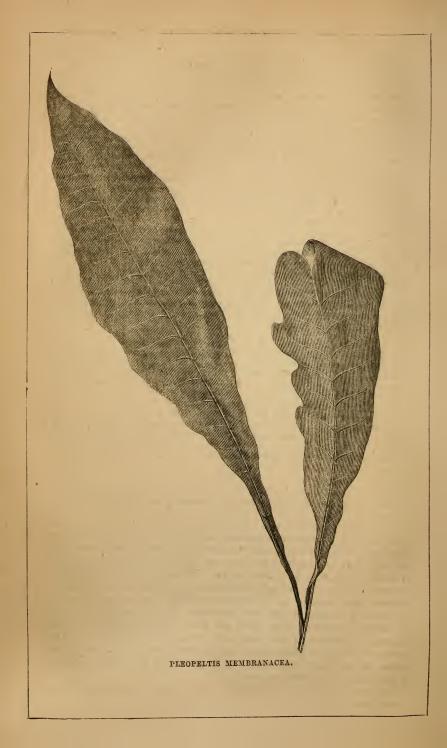
and well formed, a hardy and vigorous grower.

BOURBON.

Œillet Flamand (Ogar), brilliant rose, delicately striped with pure white, a medium sized compact and double flower, habit robust, quite a distinct variety.

We ought to obtain some valuable as well as new kinds out of the above. For instance, a brilliant red Madame Domage would be something uncommonly desirable, nor ought a seedling from that beautiful but uncertain rose Auguste Mie, to be despised, particularly if superior in constitution. It is a feature worthy of remark that there are more light coloured kinds than have appeared for some years among the novelties for 1867; indicating a change in breeding strains from the perpetual "Jacqueminot" blood. Among the raisers Guillot père, the two Verdiers, and Lacharme are most likely to exhibit the best productions. Thorin, of the latter, reads highly promising. Jules Margottin also figures as a parent, its progeny ought never to be lost sight of; Victor Verdier is, as it were, at present, on trial.

Clapton.



FERNS AND FERN CASES.



UR last notes on this subject appeared at page 241 of the volume for 1865. We have now completely given up the use of hot water, and all the case ferns are subjected to cool treatment. This answers far better than could have been anticipated. It seems as if the most tender

stove fern would bear with equanimity the temperature of a case of large size without artificial aid; and it must be remembered that the larger the case, the more equable is its temperature within, rising slowly to the maximum of the air without, and in like manner falling slowly to the minimum. I have already enumerated some sixty fine ferns that are admirably adapted for cases, and I re-open the subject by referring to

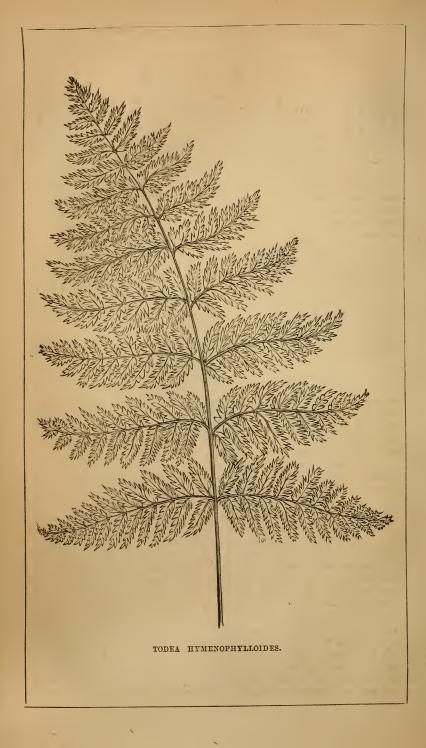
PLEOPELTIS MEMBRANACEA.—This is understood to be one of the most tender ferns in cultivation, and it is undoubtedly one of the most beautiful. There is not one in the collection that bears cool treatment more patiently than this, and it makes fronds annually, measuring eighteen to twenty-four inches in length. The growth of last year, in a 48-sized pot, continued quite green until destroyed by the frost of January last, when, in spite of covering the bedroom case with carpets, three or four degrees of frost got in. This fern has a slowly creeping rhizoma, from which proceed entire, thin, nearly stalkless fronds of a most delicate membranaceous texture. When seen against the light, they are pellucid, and of a delicate green colour, and not much unlike, in colour and texture, the leaf of a lettuce. When the fruit appears, the fronds are highly ornamental, the sori being disposed in regular rows, and of a bright orange colour. Unfortunately, the artist took, by mistake, a couple of barren fronds for the annexed sketch, which would have been far more effective if one of them had been in fruit.

PLEOPELTIS TERMINALIS is a first-rate case fern, and merits particular attention from possessors of good cases, for it takes the same place in the case that *Drynaria quercifolia* and *Pleopeltis phymatodes* do in the stove. Its shining, deep green, elegantly-cut fronds render it very distinct, and it forms a most beautiful specimen.

PLEOPELTIS LYCOPODIOIDES.—A pretty little fern, with creeping rhizomas and small strap-shaped fronds, of a glossy deep green. It is one of the best for planting in a cocoa-nut shell for suspending.

PLEOPELTIS PUSTULATA.—A small fern; some of the fronds divided into half-inch wide tapering divisions; others entire, and strap-shaped. It extends rapidly by its creeping rhizomas, and needs but little care.

TODEA HYMENOPHYLLOIDES.—This much-prized and most delicately-constituted fern is unquestionably one of the best that can be planted in a case. It loves the close moist air, the subdued light, the equable temperature, and the perfect stillness. I have lately parted with a plant which has a stem a foot high, and which I estimated to be fully one hundred years of age. It is a tree fern, but at the utmost makes but a small tree. When put in stove



heat this fern loses all its beauty; it cannot, in fact, be kept too cool, provided it is safe from frost. To be exposed to a draught of air even a few minutes will destroy all the beauty of a specimen; and hence it is well, when it is grown as a window plant, to keep it covered with a bell-glass. The soil for it may be the same as for other ferns, but with a small quantity of powdered brick or pot-

We have adopted pot culture throughout now, both because affording room for a greater variety of plants, and for increased convenience and entertainment. The pots are plunged in cocoa-nut fibre, and are always clean, and each plant can have the exact treatment it requires. It is but proper to say, however, that pot culture was forced upon us, for the cases became water-logged, and the soil sour and pasty, as I long ago foresaw it would do, in cases so constructed that removal of surplus water is impossible. The pot system is a great gain to those who wish to grow as many varieties as possible; and as any fern can be lifted out for examination, there is increased entertainment to make amends for the loss of the picturesque scene that may be created when they are all planted out.

I hope to continue these notes again, as in former times.

S. H.

THE FLOWERING OF THE YUCCA FOR THE PURPOSE OF DISPLAY.

BY J. WILLIAMS, OF BATH LODGE, ORMSKIRK.



sherds intermingled.

N looking over, the other evening, the list of succulents in the "Garden Oracle" for 1864, I was much struck with the following: "Yucca.—Of this noble genus of lilyworts, A. filamentosa is certainly the hardiest and the handsomest. They are all handsome, and the first

to be procured are filamentosa, gloriosa," etc. I have much pleasure in endorsing every word of the paragraph from which the above quotations are taken, and having had the boldness of lately defending this noble plant from its being stigmatized as "the worst yucca," the corroboration has induced me to say a few words on its management. "Adam's Needle and Thread," as the plant is popularly called, is, when well managed, handsome at all seasons, and glorious in bloom. A good plant in bloom may be seen a quarter of a mile off; and in the dead of winter, a good clump of this fine plant, with its broad, drooping, pine-apple-looking foliage, copiously fringed with white filaments, has a decidedly tropical appearance. But the plant is rarely seen well managed; and the reason is this—the plant, after flowering, dies down, and perpetuation is dependent on a colony of suckers which spring up around the old plant, each striving for the mastery, and, when after a year or two, or more, some favoured sucker gains the ascendancy, perhaps the plant flowers again. But even in this state the plant is always interesting. But to insure a bloom of this noble plant for clumps on lawns and other select places, the best method is to grow the plant singly;

that is, take every sucker from the plants you wish to bloom. Given, an old plant, as above described, lift it carefully, sort all the suckers into sizes; round the base of the strongest will be found a series of rooted knobs (suckers waiting for development); remove every one of these with a knife, or break them off, if you choose; reserve these as the smallest size—you will, perhaps, sort them into about four sizes; plant each size by itself in a bed of light rich sandy earth, or any good soil. It will, perhaps, take three or four years to bring the strongest to a flowering state. Strength will determine this point, and plants that intend flowering have the leaves in the centre densely imbricated, protecting the embryo inflorescence. If a number of such plants could be moved to a prepared bed on a lawn, or other favoured place, free from wind, they would make such a display as is rarely seen in garden scenery. The plant is of the easiest propagation, and a succession easily maintained.

HINTS ON THE CULTIVATION OF GLADIOLI.

BY EUGENE VERDIER, RUE DUNOIS, GARE D'IVRAY, PARIS.



HESE plants, the produce of G. gandavensis, itself proceeding from a hardy species, the G. psittacinus, do not require much particular care; common garden earth will suit them, if previously dug and lightened. They do not thrive in loamy or clayey soil, generally prosper-

ing best in light sandy soil. Successive planting in the same stuff, and in the same place, is extremely pernicious to their prosperity, and should be avoided; it is therefore urgent that the place of growth be changed every year, so as to return to the same bed, but after three years, during which interval it should be manured with good horse or cow dung, according to the greater or less dampness of the soil, using the former for the most damp.

Planting in the open ground should take place in each fortnight successively from the end of March to June. Prolonged bloom will thus be obtained, commencing in July and continuing until November. The bulbs collected from the last planting, not having arrived at perfect maturity, should not be relied upon for the ensuing season.

The size of the bulbs should also be taken into consideration for the succession of blossoming, as it is notorious that the largest are not those which produce the finest flowers; but should they be planted together, the largest will flower first, the medium next, then giving place to the smallest. Planting in January in pots of five inches, placed under cold frames, or under a south wall, covered with dry leaves to protect them from frost, and afterwards planted out, when there is no longer any fear of frost, will enable them to flower from the month of June; the bulbs should be placed at a depth in earth according to their size, the smallest covered by about one and a half or two inches, while the largest should have about three inches thick of soil.

Watering should be abundant, if the weather is dry and warm.

The separation of bulbs should be made in autumn, as fast as the flower-stalks begin to get dry, as then the bulbs are perfect and ripe, their maturity being complete, whilst, if you wait longer, in order to make the separation of the whole crop at once, the stalks of certain of the earliest varieties, as well as those of the first planting, will fall and detach themselves from the bulbs, which deprived of growth, in continual contact with the humidity of soil, will quickly be deteriorated, and only produce unsound roots unfit for reproduction. As soon as the separation is effected, the bulbs should be placed in a dry place, airy, without heat, upon shelves or in cases, not one upon the other, and protected from frost, they will then keep well.

The flower-stalks, cut and plunged in water, go on flowering, the buds opening easily in succession; these blooms, surrounded with elegant foliage, such as tamarix, or asparagus leaves, etc., make fine

ornamentations for the drawing-room.

BIENNIAL LIFTING OF MINIATURE FRUIT-TREES.



T would be well if all those who write for gardening amateurs were aware of the necessity there is for giving the most minute instructions that can be given for the performance of the different operations they recommend, especially those which are at all out of the practice of ordinary workmen-by which I mean workmen as distinguished from

what are really entitled to be called gardeners. Amateurs are often dependent on such people, and have only the knowledge they have acquired by reading to help out and direct them, and are for that reason sometimes puzzled for a long time to know how to execute with ease and expedition operations which appear to practical gardeners only possible to do in one way, and that the right one. It is indeed so hard for those who have always seen things done as they ought to be, to imagintheir being done otherwise, that it would be well, when writing for the press, to try how a person ignorant of the subject would act according to their directions, so that

they could add to or alter them accordingly.

The occasion of the above observations is the following experience of my own. Having merely a good workman for a gardener-a man industrious and handy with his spade-I had to depend on my own unassisted comprehension of Mr. Rivers's directions for the biennial removal of fruit-trees, whose roots require more careful treatment than is given to the thorn quicks, etc., to which my man was accustomed, and it was upwards of half-a-dozen seasons before I at last hit upon a tolerably easy and expeditious mode of carrying them out, in the case of full-sized bushes and pyramids. As long as the trees were small, their removal, though more tedious than it ought to have been, was tolerably easy; but when, a couple of seasons ago, I commenced operations on a number of strong bush apples on the crab, four to five feet high, and so much through that they required a circle of roots two feet radius from the stem to be preserved, it was different. Bearing in mind Mr. Rivers's directions for the removal of pears and apples—"A trench should be opened round the stem, the width of a spade, and from twelve to fifteen inches deep; the tree should then be raised with the ball of earth attached to its roots intact;" and likewise those for root-pruning the pear-" A trench should be dug round the tree, about eighteen inches from its stem," etc .- by which I had hitherto acted, as far as possible, on smaller trees, and got such a trench dug at two feet distance from the stem of the tree, intending, of course, in this case, merely to get up the roots without a ball, but was not thereby helped in the least, as the spade could not be got under the roots across the narrow trench. The next step was to widen the trench to two spades in width, and from this, with the addition of forking out the soil from the roots, the job was at last accomplished.

Looking back, from where the tree was planted in another place, at the excavation it came out of, and thinking of the time that had been taken up, I said to my man, "There must surely be some easier method of removing full-sized bushes, or it would never be practised." "Yes," was the response, "there is work there to have taken up an oak." We tackled the next as follows. My man cut down to the depth of his spade, a new No. 2, in that circle of two feet radius from the stem I had marked out; and then, without making a trench, putting down the spade again, he dug towards the stem, so that while taking up a spadeful of earth he loosened and raised the roots for some distance inwards. As, however, those towards the centre of the ball still remained undisturbed, something more was necessary, and I therefore directed him to dig a hole in the form of a V, with the open end towards the circle of roots, in order to make room for the handle of the spade to be lowered sufficiently to get the blade under the ball, which served the purpose intended; and a similar cut being made at the opposite side, the job was accomplished. In this manner we got through the lot. But the time taken up by eighteen or twenty trees, near about that size (I am afraid to mention it), was such as to force the reflection upon me, "Nurserymen must surely have some cleverer mode of taking up good-sized afruit-trees without injury to the roots, or they could never live by the business."

The next season, the genius of my man hit upon an improvement upon the lastmentioned mode. After I had marked out the circle within which the roots were
to be preserved, and he had cut down through it all round, he dug a trench just
inside that circle, putting his spade down among the roots in the line that they
came from the stem. This loosened them so far inward, that he was afterwards
able to shove his spade under them, holding the handle about the level of his knee;
and by doing this in three or four different places, while I helped him by pulling a
little at the opposite side of the stem, we found that we could get up the trees with
tolerable ease and expedition. The roots, too, came up almost always uninjured
(I should state the trees had been often biennially removed), as the spade was put
down in the line of their growth. Should it happen that they were so thick, or
twisted, as to make this be otherwise, a fork could be safely used in the same
manner. It thus occurred to me that this was what was probably meant by Mr.
Rivers's directions, when he says, "A trench should be dug round the tree, about
eighteen inches from its stem;" and that it is the outside of his trench, and not the
inside, that is to be at that distance.

With balls or circles of roots of only eighteen-inch radius from the stem, instead of two feet, which is the largest that Mr. Rivers speaks of removing, or root-pruning, with the exception of those of the plums, it was much the same way. Let digging a trench of a spade's-width completely outside of a circle of roots of this diameter—which is upwards of a yard, taking the stem into account—be tried, and it will be found that a spade cannot be lowered sufficiently across the trench to be pushed beneath the roots, so as to get them up, even operating from both sides; one must dig among the roots besides; which, as my experience appears to tell, it is better to do at first, by making the trench there. In fact, it appears, that unless it be a large tree which it is necessary to undermine, working from a space that a man can stand in, a trench completely outside the circle of roots is a hindrance rather than otherwise, because it takes away a support that the back of the spade would rest upon while it was being forced inwards beneath the ends of the already loosened roots.

Some people may laugh at all this, and think me either ignorant or stupid; but as several others find the same difficulties in their way, our ignorance is to be taken into account. One friend of mine, who employs a more regular gardener, who transplants his bush-apples and pears for him in a more expeditious and slashing style, finds the roots shortened and injured so much, that the trees take more than a whole season to recover. And another prefers letting them canker on a cold clay soil, and take their chance, in order to avoid the trouble and time taken up in

removing them.

Narberth.

HORTICULTURAL AFFAIRS.

EXHIBITIONS ANNOUNCED. — Royal Horticultural Society, Spring Shows, March 19th and April 16th; Great Show, June 4th to 8th; Rose Show, July 2nd; Exhibition at Bury in connection with the Royal Agricultural Society, July 15th to 19th. Royal Botanic Society, Spring Shows, Saturdays, March 23rd, April 13th, and April 27th; General Exhibitions, Wednesdays, May 29th, June 19th, July

3rd. National Exhibition, Manchester, June 7th to June 15th. West of England Rose Show, Hereford, July 9th. Dundee Floral Fete, Baxter Park, Sept. 4th, 5th, 6th, and 7th. Clifton, Spring Show, May 23rd; Rose Show, June 25th; Autumn Show, August 29th. Leeds Horticultural Society, Great Show. June 13th and 14th. Brussels, April 14th, 15th, and 16th. Malines, March 17th, 18th, 19th.

Paris Universal Exposition, April 1st to October 31st.

Mr. Hullett's Wonders.—We have not met with any one who has seen Mr. Hullett's Passion Flowers and Mangosteens, or the wonderful "annual fruit" from Siam, which has seeds as big as a child's head; nor have we seen any of these things ourselves, nor have we been able to find any authentic account of them in any work of authority. We suppose the Sorghum Tartarium, seeds of which were offered through the medium of the Times, to be identical with the sugar-csns grass, Holcus saccharatus, described and figured in the Floral World of 1858, p. 128. If it should not prove to be identical with this plant, we nevertheless feel fully persuaded that no one will ever eat a loaf of bread made from the seeds of this grass ripened in England. It may prove to be an ornamental grass, and perhaps of some value as fodder, but as a cereal adapted for this climate, it is worthy of cultivation only by a madman.

ROYAL HORTICULTURAL SOCIETY.—The report read at the anniversary meeting stated that the subscriptions for the past year amounted to £8176, and the total income for the year was £13.184. The expenses amounted to £12.203; the liabilities of the society were £980, and the balance in hand amounted to £203. The council called attention to the extension of the time for the principal exhibition to five days—namely, June 4th, 5th, 6th, 7th, and 8th. The educational scheme, instituted for the benefit of gardeners, was described as working well; the examinations held had resulted in thirteen young men receiving certificates either for horticulture or fruit and vegetable culture. Five of these were employed at Chiswick, five at the Royal Gardens, Kew, and three were from private establishments.

Great versus Little Vines, etc.—On December 8th, 1866, there appeared in the Gardener's Magazine an article on the advantages to be derived from allowing vines abundance of room in suitable houses, as compared with the customary restriction of vines to spaces incommensurate with the natural vigour and free growth of the vine. The writer hinted, that growing little vines in pots, and many varieties of grapes on vines kept to single rods, was only to be regarded as "toy practice," pretty enough in its way, but to some extent an injury to the vine, and likely, in the course of time, to lead to degeneracy. The principal point aimed at, however, was, that if vines are allowed to extend themselves over vast spaces, they keep in better health than if cramped, and bear crops which, for quality and quantity, measuring space against space, give them an immense superiority over restricted vines. The subject has since been discussed in the Gardener's Chronicle, and there is rising up a spirit of inquiry as to the actual value of dwarfing and cramping systems of cultivation. Our contemporary, the Gardener's Magazine, returned to the subject on the 2nd and 16th of February, with a view to show that the diseases of vines are to a great extent caused by a too severe system of pruning, which disturbs the balance between the head of the plant and its roots; and then proceeded to say some unkind things of the little dwarf trees that Mr. Rivers has rendered so popular by his advocacy of their claims to general cultivation, in place of the big trees of our forefathers. The remost important subjects, full of interest, and bearing directly on the state of a ticultural practice in England at the present time. What, if, after all our supposed advances of late years, there should come a reaction against all "toy" systems, and we should go back to the old orchard method of fruit culture for hardy fruits, and require for every grape vine a glass-house at least 100 feet in length! Still there are points raised in the discussion which no practical horticulturist can ignore.

A SELECTION OF VEGETABLES FOR 1867.

Beet.—Pine-apple, St. Osyth, and Dewar's Short-top are the three best. The Seakale beet is rubbish.

BRUSSELS SPROUTS.—Roseberry and Scrymger's Giant. BEANS.—Mazagan, Longpod, Taylor's Green Windsor.

KIDNEY BEANS.—Dwarf: Perkin's Early Warwick, Sion House, Newington Wonder. Runners: Scarlet, Eclipse.

Borecole (or Kale). - Cottager's, Green Curled Scotch, Sclater's New Cab-

baging, Albert Sprouts, Fearnought.

Broccoll.—To cut in December, January, and February: Snow's Winter White, Early Penzance, Adams's Early White, Hampton Court, Dalmeny Park, Dilcock's Bride. To cut in May and June: Conning's Reliance, Foster's Champion, Richmond Late, Miller's Dwarf, Basket White, Cattell's Eclipse. For cutting in September, October, and November: Walcheren, Dancer's Pink Cape, Grainger's White, White Cape.

CARROT. - For gardens: Long Surrey, Intermediate, French Shorthorn. For

farm and allotment grounds: Belgian White, Selected Altringham.

CABBAGE.—Kemp's Incomparable, Tom Thumb, Brunswick, Sutton's Imperial. Rosette Collard, Enfield Market, Dwarf Early York, Atkinson's Matchless, Green Curled Savoy, Early White Savoy.

CAULIFLOWER.-Stadholder, New Mammoth, London White, Walcheren, Le

CUCUMBER.—Hamilton's Volunteer, Kirklees Hall Defiance, Carter's Champion, Cuthill's Black Spine, Lord Kenyon's Favourite, Mill's Jewess. (Usually Blackspined cucumbers are most handsome, but less in size and productiveness than white-spined kinds.)

CELERY.—Sutton's Superb Pink, Coles's Dwarf Red, Incomparable White.

Endive. - Green Curled, Batavian, Moss Curled.

LETTUCE.—Berkshire Brown Cos, Sutton's White Cos, Tom Thumb, Vosey's Nonesuch, Ne Plus Ultra, Hammersmith Cabbage. The last is the hardiest.

Onion - Reading, James's Keeping, Deptford, Nuneham Park.

Peas.—First Early: Sutton's Ringleader, Sangster's No. 1, Early Emperor. Second Early: Eley's Essex Rival, Advancer, Princess Royal. Main Crop: Champion of England, Paradise Marrow, Veitch's Perfection, M'Lean's Wonderful. Late: Ne Plus Ultra, Knight's Dwarf Green, British Queen. Best four varieties: Early Emperor, Princess Royal, Veitch's Perfection, British Queen. Six good kinds, all dwarf growers: Sutton's Ringleader, $2\frac{1}{2}$ feet; Bishop's Long-podded, 2 feet; Princess Royal, $2\frac{1}{2}$ feet; Ringwood Marrow, 3 feet; Yorkshire Hero, $2\frac{1}{2}$ feet; Knight's Dwarf Green Marrow, 3 feet.

POTATOES .- Veitch's Ashleaf, Flour-ball, Scotch Queen, Pink-eyed Regent, Queen of Flukes, Pink-eyed Fluke. These six sorts cannot be surpassed for productiveness, quality, and keeping. The following six are also first-rate Golden Globe, Early Shaw, Prince of Wales Kidney. York Regent, Fluke, Milky White.

A very productive and excellent kind is American Red.

TURNIP.—Sutton's Early Short-top, Mousetail White Globe, Red-top Mousetail Orange Jelly.

NEW PLANTS.



YPRIPEDIUM SCHLIMII, Schlim's Lady's Slipper (Bot. Mag. t. 5614). -A pietty species from New Granada, found in moist places, at an elevation of 4000 feet above the sea level. It is a stemless, terrestrial plant, with leathery ligulate leaves, and the flower-stem bears half a dozen flowers, sepals and petals white, richly spotted with crimson, the

lip is white behind, but has a deep crimson blotch in front.

LYCASTE GIGANTEA, Gigantic Lycaste (Bot. Mag. t. 5616).—Orchideæ. A stately species, native of Central America. There are many varieties, but that which appears to be the typical form has a one-flowered scape, the sepals and petals of great length, and a yellowish olive colour, the lip three lobed and short, the colour maroon, bordered with an orange rim.

Bowier volubilis, Twining Bowier (Bot. Mag. t. 5619).—Liliaceæ. curious plant, quite destitute of beauty. "It consists of little more than a globose green bulb, from the apex of which ascends yearly a very slender, twining green flower-stem, six to eight feet high, that throws off an abundance of flowerless and leafless branches below, and above bears numerous small green flowers." It is allied to Drimia and Scilla, and is a native of the Cape of Good Hope.

Curcuma Australian, Australian Wild Turmeric (Bot. Mag. t. 5620).—Zingiberaceæ. Obtained by Mr. John Veitch from Cape York, on the Australian continent. It is an ornamental stove herb, with lanceolate leaves a foot or more in length, and a many-flowered spike bearing pale yellow flowers and conspicuous rose-red bracts. It flowers in the autumn, and is then a pleasing object in the stove.

TAPEINOTES CAROLINE, Empress Caroline's Tapeinotes (Bot. Mag. t. 5623).—Gesneriaceæ. A superb stove plant, introduced by Mr. Bull. It was discovered during the Brazilian travels of the present Emperor of Mexico (Maximilian I.), and is named in honour of the Empress of Mexico. It is a small under shrub, the leaves opposite, four to six inches, long, oblong lanceolate, bluish green above, bright red purple below. Flowers solitary, corolla an inch and a half long, white. Will be highly esteemed both for its handsome foliage and elegant flowers.

Angrecum (Bot. Mag. t. 5624.)—Orchidea. A curious and pretty species, the flowers are produced in a long pendulous raceme,

flowers three quarters of an inch in diameter, flat, pale straw colour.

IMPATIENS LATIFOLIA, Broad-leaved Cingalese Balsam (Bot. Mag. t. 5625).—Balsamineæ. A perennial Balsam, native of Ceylon and the Himalaya. It is a branching shrub, two or three feet high, with ovate leaves and rosy flowers.

CLAVIJA FULGENS, Brilliant-flowered Clavija (Bot. Mag. t. 5626).—Myrsineæ-A very beautiful plant from South America. The trunk is about four feet high, very stout, leaves ten to fourteen inches long, three to five inches broad; racemes erect, four to five inches long; the rachis entirely hidden by the densely crowded flowers, corolla half an inch in diameter, deep orange red, yellow in the disc. The rich colour of the crowded flowers and the very distinct character of the whole plant, renders it a striking ornament of the stove.

BARLERIA GIESONI, Dr. Gibson's Barleria (Bot. Mag. t. 5628).—Acanthaceæ. This fine plant is a native of Central India. It is a small glabrous shrub, with leaves two to four inches long, the flowers in short terminal spikes, corolla large, pale purple. It is a desirable plant for flowering in the stove during winter, but not equal to some other members of the same natural order already in cultivation.

Saccolabium Curvifolium, Recurved-leaved Saccolabium (L'Illust. Hort. t. 493).—This lovely N palese orchid is now well known to cultivators. Its many-flowered racemes literally glow with their small orange red flowers, which are extremely neat, and when the plant is well treated in the India house, it flowers most profusely.

PEAR BEURRE DE FROMENTAL (L'Illust. Hort, t. 494).—A large, melting pear, pyriform in shape, the skin amber, and covered with cinnamon russet; flesh white,

juicy, sweet, and highly perfumed. Ripe during October and November.

WEIGELIA MIDDENDORFFIANA V. PURPURATA, Purple-flowered variety of Weigelia Middenaorffiana. A robust-growing, hardy shrub, with handsome dark green leaves, and large panicles of flowers, which are purplish red, shading to black at the base of the petals.

AMARYLLIS (HIPPEASTRUM) ALBERTI (L'Illust. Hort. t. 496).—A handsome-double-flowered amaryllis, the segments of the flowers lobed and notched, the

colour vermilion red.

MYOSOTIS SEMPERFLORENS IMPERATRICE ELISABETH, Perpetual-flowering Forget-me-not (L'Illust. Hort. t. 500).—An exquisitely beautiful hardy herbaccous plant, the flowers in dense clusters, colour deep blue, with clear yellow eye.

STRAWBERRY PERPETUAL PINE (L'Illust. Hort. t. 501).—A small-fruited strawberry, bearing abundantly in early summer, and again in autumn. The plant is of vigorous constitution, the fruit round or oval, vermilion red, the flesh white or rosy, sweet, and perfumed.

CAMELLIA JAPONICA STELLA POLARE (L'Illust. Hort. t. 502).—A very neat, medium-sized flower, very symmetrical and compact, the colour deep carmine red,

with a pale bar down the centre of each petal.

inger-post for purchasers of plants, seeds, etc.

UNDER this head we shall endeavour to present to our readers from time to time selections of the best plants, flowers, seeds, etc., etc., adapting the selections to the seasons, and, as far as possible, to the presumed requirements of our amateur readers. We are not introducing a new feature, for from the first issue of the Floral World, we have constantly

sought to recommend good things to notice, and warn our readers against bad things; but the business of selection is now to be pursued more systematically than hitherto. As a rule, descriptions will not be attempted, and the names must be accepted as sufficient.

SELECTION OF FUCHSIAS.

SCARLET SEPALS AND SINGLE DARK COROLLA.

Eight for Exhibition.—Light Heart, War Eagle, Lizzie Hexham, Harry George Henderson, Aurora, Charming, La Favorita, Lord Elcho.

Twelve for Decoration, very showy.—Enoch Arden, Conquest, Land of Plenty, Victor Emmanuel, Fame, The Lord Warden, Bacchus, Exhibitor, La Traviata, Lucrezia Borgia, Little Bo-peep, Lord Elcho.

SCARLET SEPALS AND SINGLE ROSE OR LAVENDER COROLLA.

Six for Exhibition.—Roderick Dhu, Father Ignatius, Consolation, Northern Light, Sunshine, Beauty.

Seven for Decoration, very showy.—Constellation, Emblematic, Don Gicvanni, Finsbury Volunteer, Rifleman, Ben-e-Gloe, Dr. Livingston.

WHITE SEPALS AND SINGLE PURPLE COROLLA,

One for Exhibition.—Prince Alfred.
One for Decoration.—Lady Haytesbury.

WHITE SEPALS AND SINGLE SCARLET OR PINK COROLLA.

Seven for Exhibition -- Rose of Denmark, Lucy Mills, Catherine Parr, Arabella, Agnes, Mille. Tietjens, Minnie Banks.

Three for Decoration .- Bianca Marginata, Il Trovatore, Merry Maid.

SCARLET SEPALS WITH SINGLE WHITE COROLLA.

Three for Exhibition.—Conspicua, Puritani, Mrs. Gladstone.

Two for Decoration.—Bland's Floribunda, short stiff growth, requires no stakes, and will grow and bloom under almost any treatment; Queen of the Whites, very dwarf.

SCARLET SEPALS AND DOUBLE WHITE COROLLA.

Three for Exhibition.—Emperor of Fuchsias, when two or three years old a fine object in a conservatory; Eva; Vainqueur de Puebla, the best double white corolla out, fine for the open garden.

SCARLET SEPALS AND DOUBLE DARK PURPLE OR BLUE COROLLA.

Six for Exhibition.—Grand Duke, the largest and closest corolla, an improvement on Universal; Rifleman, Blue Beauty, Agamemnon, King of the Doubles, Norfolk Giant (or Norfolk Hero).

Three for Decoration .- Grand Admiral, Alberta, Monster.

A SELECTION OF CHRYSANTHEMUMS.

Fifty Large Varieties for Specimen Flowers.

(The best 25 marked thus *.)

Abbé Passaglia, brassy amber; Albert Helyer,* large rose purple, a noble flower; Alfred Salter, delicate pink; Antonelli, salmon orange; Beauty,* peach blush; Bernard Palissy,* bright orange; Beverley,* cream white; Cardinal Wiseman, crimson; Cherub,* golden amber; Dr. Brock, reddish orange; Duchess of Buckinghan,* white, sulphur centre; Duchess of Wellington, delicate rose; Dupont de l'Eure, orange; Empress of India,* white, very large; Eve, sulphur yellow, incurved; General Bainbrigge,* dark orange amber; General Hardinge, Indian red; General Slade, red, tipped orange; Globe, white; Golden Ball, bright orange, beautifully incurved, and fine form; Golden Dr. Brock,* bright yellow, beautifully incurved; Golden Eagle,* Indian red and gold; Golden Trilby,* (Forsyth's), fine yellow; Her Majesty, silvery blush; Iago, dark purple violet, incurved, good for pot culture; Imogene,* rose, shaded silver, incurved, fine show flower; Jardin des Plantes,* bright golden orange; King of Denmark,* bright rose lilac, incurved, fine show flower; Lady Carey,* large rose lilac, incurved, a beautiful show flower; Lady Hardinge,* delicate rose; Lady Slade, lilac and pink; Margaret Vatcher,* large rose, pink, incurved, and fine; Mr. Brunlees,* large, Indian red, tipped gold, incurved, and fine; Mr. Wyness.* violet puce, incurved, a fine late-flowering variety; Pink Pearl, delicate pink, sladed silver, incurved, fine for specimens; Prince of Wales,* purple violet, beautifully incurved, a fine show flower; Princess Alexandra, lilac blush; Princess of Wales, white tinted rose; Queen of England,* blush; Raymond, golden fawn; Robert James,* orange cinnamon; Sam Weller,* Indian red, tipped gold, incurved, a fine show flower; Themis, fine rose; Venus,* lilac peach, finely incurved, a beautiful show flower; Virgin Queen,* pure white, beautifully incurved, fine for specimens or cut blooms.

Fifty Large Varieties for Specimen Plants. (The best 12 marked thus *.)

Alba multiflora, white; Alma,* rose crimson; Annie Salter, golden yellow; Arigena, amaranth; Attraction, large blush; Aurea multiflora, pure yellow; Beauté du Nord, violet carmine; Bernard Palissy, bright orange; Blanche of Castile, pure white; Cardinal Wiseman, red crimson; Chevalier Domage, bright gold; Christine, peach; Crimson Velvet, velvety crimson; Defiance, white; Edwin Landseer, rosy ruby; Eve, sulphur yellow; Florence Mary, bright salmon red; Florence Nightingale, pale sulphur; General Bainbrigge, dark orange amber; Gloria Mundi, brilliant golden yellow; Golden Christine,* golden buff; Her Majesty, silvery blush; lago, dark purple violet; Jewess, orange and red; Julie Lagravére, crimson; Lady Hardinge, delicate rose; Lord Clyde,* bright crimson, fine foliage; Lord of the Isles, rosy orange; Lord Ranelagh, red orange; Little Harry,* golden amber; Mr. Murray,* violet rose; Mount Etna,* red; Mount Vesuvius, fiery red; Pelagia,* orange cinnamon; Pink Pearl, delicate pink; Plutus, bright gold; Prince Albert, crimson; Prince of Wales, fine purple violet; Progne, amaranth; Quilled Beauty, orange cinnamon; Rifleman, ruby; Sam Slick, ruby; Sam Weller, Indian red; The Globe, blush white; Venus,* fine lilac peach; Vesta,* ivory white; Virgin Queen, pure white; White Christine,* white; Yellow Perfection,* yellow.

Eighteen Varieties of Pompones for Standards. (Best 9 marked thus *.)

Bob,* flowers early as a standard; White Trevenna, Rose Trevenna,* Cedo Nulli,* Golden Cedo Nulli*, Lilac Cedo Nulli,* Durnflet,* Antonius, Andromeda, Miss Nightingale, Firefly,* Madame Montels, La Vogue, Salamon,* Lizzie Holmes, St. Thais, Astrea, Florence.

SELECTION OF GLADIOLI.

Selection of One Hundred Varieties for Exhibition .- Achille, Aurelian, Blair Athol, Calypso, Carminata, Charles Dickens, Ceres, Clemence, Cuvier, Comte de Morny, Crystal Palace, Diana Chateaubriand, Duc de Malakoff, Dr. Lindley, Edulia, Eleanor Norman, El Dorado, Ensign, Endymion, Flore, Florian, Fulton, Galatea, Garibaldi, Impératrice, Eugenie, James Watts, James Veitch, J. W. Lane, Janire, John Bull, Julia, Juno, John Waterer, Kate Kearney, Lady Alice Hill, Le Poussin, Liuné, Lord Granville, Lord Raglan, Madame de Sevigné, Madame Domage, Madame Furtado, Madame Isidore Salles, Madame Vilmorin, Madame Adele Souchet, Madame Basseville, Madame Binder, Madame Eugene Verdier, Madame de Vatry, Madame Haquin, Madame Periere, Madame Leseble, Madame Rabourdin, Mdlle. Clara Loise, McMahon, Maid of Perth, Maria, Mathilde de Landevoisin, Mazeppa, Meyerbeer, Miss Porter, Mr. Marnock, Mr. Mowbray, Monsieur Camille Bernardin, Monsieur Lebrun D'Albanne, Mrs. Edward Knott, Napoleon III., Nemesis, Ninon de l'Enclos, Ophir, Ornement des Parterres. Oracle, Pallas, Panelope. Pline, Princess Clothilde, Princess Mathilde, Princess Maude, Prince of Wales, Prince Imperial, Princess of Wales, Peter Lawson. Raphael, Rebecca, Rembrandt, Reine Victoria, Roi Leopold, Roscius, Rubens, Samuel Waymouth, Stephenson, Stewart Low, The Favourite, The Colonel, The Major, Walter Scott, Velleda, Vesta, Vicomtesse de Belleval.

Twenty for Clumps and Beds .- Aristotle, salmon, rose and red; Brenchleyensis, vermilion and crimson; Bowiensis, crimson and orange; Chateaubriand, rosy cerise; Couranti fulgens, brilliant crimson; Daphne, cherry and carmine; Don Juan, orange-red and yellow; Dr. Andry, orange-scarlet; Fanny Rouget, rose and carmine; Gil Blas, carmine-rose; Gandavensis, scarlet and yellow; Impératrice, salmon-blush; Janire, salmon and crimson; John Bull, white; Madame Coudere, shaded carmine; Mars, brilliant scarlet; Mrs. Blouet, rose, shaded carmine; Mr. Vincheon, rose and reddish-salmon; Mr. Georgeon, salmon-rose;

Triomphe d'Enghien, carmine shaded yellow.

The varieties enumerated in the last of the lists are those that have been found especially useful in the grouping system at Stoke Newington.

SOAP-SUDS AS MANURE .- During the course of a lecture at Bradford, the other evening, Dr. Dresser, an eminent lecturer on the physiology of plants, said that a common idea prevailed that soap-suds were a good manure for fruit-trees. This was a great mistake, but happily for the lives of the trees, the knowledge of the true position of the roots was not generally understood. It was quite a common occurrence, remarked the lecturer, for people who had a garden to preserve the soapsuds, and, taking them into the orchard, to pour the suds on the soil near to the trunks of the trees. By this proceeding the suds, which were a deadly poison, did not reach the roots, which were not near the trunk, but spread themselves under ground on a line somewhat with the wide-spreading arms of the trees. Dr. Dresser said this practice was quite common in the south of England, but he thought that in this intelligent part of the country people who had gardens know better than to deluge their trees with such a noxious element to vegetation as soap-suds. The knowledge that suds are not good for manure will no doubt prove useful to many people who take a pride in their gardens.

E. M., having met with the enclosed paragraph in a country newspaper, will be much obliged to the Editor of the FLORAL WORLD, if he will tell her in the next number if he agrees with it; as she has hitherto believed that soap-suds were a valuable manure for both flowers and vegetables. [The pouring of soap-suds at the base of the stems of fruit-trees may not be good practice, but the statement that soap-suds "is a deadly poison" to plants is, in our opinion, in direct opposition to known facts. We have used soap-suds largely as a liquid manure, especially in the cultivation of the chrysanthemum, and it not only did not poison, but it apparently promoted a vigorous growth and an abundant bloom. There may be in some soaps poisonous ingredients, but, as a rule, the fat and alkali of which they consist are

well adapted to nourish plants.]

GARDEN GUIDE FOR MARCH.

Kitchen Garden.—There is a great scarcity now of green-stuff for the kitchen. Our losses of winter greens were immense, but for six weeks past we have had abundance of delicate sprouts from old stumps. Whenever sprouts are to be obtained in such warm weather as we have had lately, they should be cut as soon as large enough to take hold of them—say when as large as walnuts; for if left under the impression that they will grow larger, they will simply rush into flower, and be useless. Vast quantities of sprouts that would be delicious, if caught at the right moment, are lost through the haste with which they become hard and stringy when pushing their flower-buds, for every shoot of a brassica has flower-buds in it at this time of year. The operations of this month are in a great measure dependent on the weather. The best general advice we can give is to sow and plant everything as soon as possible. The most important subjects are peas, beans, potatoes, lettuces, and saladings generally, and spinach.

Flower Garden.—A good list of annuals, with remarks upon their uses, will be found in the number for February, 1866. All kinds of hardy annuals may be sown now. Roses may still be planted, also gladioli for autumn flowering. It is a good

time to purchase and plant hardy herbaceous plants.

Fruit Garden.—Put a good mulch on the ground amongst raspberry canes and strawberry plants. On hot, dry soils, a mulch of half-rotten dung will be good to nourish the roots of bush-apple, pear, and plum-trees. If any pruning not yet

done, finish quickly.

Greenhouse — This house should be gay now with many kinds of spring flowers. Give plenty of air in mild weather; but while east winds are blowing do not open a single ventilator; there will be quite enough air get in between the laps, etc., etc. Look over the stock, and repot all plants that need it. A good time to prune in and repot all the geraniums that are for summer and autunnal flowering.

** Past issues of the Floral World contain copious calendars of operations; and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale this year.

TO CORRESPONDENTS.

Moss on Gravel Walks, Hardy Evergreens .- M. C .- One grand preventive of the growth of moss on gravel walks is perfect drainage. A dry walk is rarely grown with moss. Occasional sprinklings of quicklime or salt will destroy moss, and to make the best of these dressings, they should be put on in dry weather. M. C. says, "I live in Herts, in a low situation, on a gravelly soil. My Lauristinuses, common Laurels, Cedrus Deodara, Roses, etc., are cut off entirely. The Portugal laurels have stood the frost well, but I have plenty of them, and want some more ornamental evergreens for the lawn and borders." It is a strange thing that the Berberis is so much neglected in the planting of hardy shrubs. Many of them will bear any amount of frost, and they like damp situations, where usually in hard weather the greatest havoc occurs. B. Darwinii is most graceful in habit, with neat glossy leaves, and abundance of orange yellow flowers in spring. Japonica has huge angular leaves, and presents at all seasons a bold and very distinct aspect. The following are fine subjects :- Berberis fascicularis hybrida, B. aquifolium, B. dulcis, Buxus Balearica (sometimes suffers), B. sempervirens and its varieties, which are many, and all good; B. rotundifolia, Ilex aquifolium Shepherdi, I. a. laurifolium, and the variegated-leaved hollies, of which there are enough distinct and beautiful to furnish the largest public promenade in England without creating monotony, and no frost will hurt them. The two varieties of I. aquifolium just named are essential because of their bold characters. Hypericum calycinum makes pretty clumps under trees, flowering abundantly in July; Phillyrea ilicifolia, Quercus ilex, Skimmia Japonica, a neat dwarf shrub, producing abundance of scarlet berries: it is one of the hardiest shrubs known. We omit the Ivies and Rhododendrons, but they may be used to great effect in the embellishment of gardens. The last-named require the soil to be prepared for them, and therefore are always regarded as distinct in purpose and character from other evergreens. Lastly, there are no finer ornaments to a lawn than the Yuccas, and those commonly used in gardens are rarely hurt by frost.

PLANTING GROUND VINERIES. - A. B. - You may box in the roots of the vines with concrete to prevent them running into the clay. We should not trouble to do it. The possibility of draining the damp side of the bed can only be determined by a competent person on the spot. If there is a fall and an outlet any place may be drained. Give us fall and outlet sufficient, and we would drain the Atlantic, if it were desirable to do so. Your neighbour need not put flags beneath the drainage in his vinery border; a foot of rubble will answer quite as well. The amount of elevation of a vine border must depend on circumstances. There are some very absorbent chalky and sandy soils in the eastern parts of England, where the rainfall scarcely ever exceeds twenty inches, and in such spots to elevate a vine border would be bad practice. In your rainy climate, probably, an elevation of five or six feet might be desirable both for dryness and to catch the sun's rays abundantly. A good border should slope gradually to the south, and to avoid excavating deep at the extreme dip of the border, it might be made shallower there. Any one who has a glimmering sense of the meaning of the plans adopted in vine culture will not be troubled about an inch or a foot this way or that; no two gardens are alike, and no two rules, however good, can be uniformly followed.

LOUDON'S "HORTUS BRITANNICUS."—W.—There have been several editions since 1830. To ascertain the exact state of the case, ask your bookseller to inquire date and price of last edition, or apply direct to Messrs. Longmans. There is no recent

book that can be said to take its place.

FISHPOND, FORCED ROSES.—J. G., Kendal—In clay soils it is usually sufficient to cut out the pond, and puddle the sides and bottom. Experienced workmen should be employed to do this, or leakage is sure to occur. Where there is no clay, and the surrounding soil is of an absorbent nature, the only safe course is to have the sides of the pond bricked in cement. After it is finished it should be filled, and a continuous run of water kept up for three months before putting fish into it. Your roses in the greenhouse are probably not well rooted in their pots. They ought to be in the pots some time, a year if possible, before forcing them, in

order to flower satisfactorily.

Fern Cases.—A. J.—True, we say but little about the condensation of moisture within the cases, for we see very little of it, though we have cases in several parts of the house, entrance-hall, drawing-room, bed-room, etc., etc. It must be a matter of management. No doubt nine-tenths of all the cases in use are supplied with an excess of water. None of our cases have had a drop of water for three or four months past; the soil is moderately most, the ferns are glossy with health and pushing new fronds freely, and there is so little condensation that the view is never interrupted. Try a drier regimen. We have become quite sick of using hot water; all our cases are cool now, and we trust they will continue so, for to keep them going with heat needs a system of engineering that pretty well turns a dwelling-

house into a workshop.

TREES, ETC.—Crito.—The exposition of the general law on the subject was offered as a general reply to a number of queries similar to yours. It appeared to us quite unlikely that the ablest reply that could be given to your queries would be of any interest to our readers. Respecting the trees, we do not want them, we did not say so much. But you must know that many trees are named from their flowers or their fruits, and that leaves alone are insufficient for their determination. Imperfect specimens reach us daily, such as fern fronds without spores, leaves of all kinds of plants, sometimes seeds, dried geranium flowers, and smashed particles of vegetation, that may be flowers or leaves, or pulp of apples or potatoes. To name Experience has taught the necessity of dealing with such them is impossible. things in a summary manner, and it was in no spirit of discourtesy to you that we put the leaves into a huge drawer, where they still lie waiting for an opportunity. The probability is that we know them all, and shall give you all the names. Thanks for the offer of the Carlina. We have long possessed it, and have access constantly to one of the largest collections of herbaceous plants in England. Liquidamber imberbe is entered in the following catalogues: —Paul and Son, Cheshunt; Rivers and Son, Sawbridgeworth; Lawson and Son, Edinburgh. L. styraciflua may be obtained almost anywhere.

COOKING SEA KALE.—Mrs. B. S.—The bitterness is not the fault of the gardener, but of the cook. It is a proof it has been boiled in an insufficient quantity of water. Put it in plenty of water with salt, let it boil fast half an hour, drain it,

and serve it hot with melted butter, and there will be no bitterness.

THE FLORAL WORLD

AND

GARDEN GUIDE.

'APRIL, 1867.

THE ARCANUM OF PERPETUAL BEAUTY.

HERE has been enough said in these pages upon the shortcomings of the prevailing system of embellishing gardens, and we may turn from the negative to the

positive in hope of some advantage to our readers. We propose, then, to unfold to them a plan for the perfect abolition of tameness and sameness, for making an end of monotony and wearisomeness, for the termination of the floral see-saw, the feast and fast system by which we make sure of flowers during June, July, and August, and of a beggarly account of empty beds during the remaining months of the year. We are to propound the Arcanum—the secret, the mystery—which is to be no mystery by the time we have done with it; and it is all to be made so plain and pleasant, that from this month of April, 1867, garden grumblers are to cease from off the earth, disappointments are to be known no more, and the reign of concord and flowery bliss is to set in with such severity as to overcome all obstacles. You'are now expecting something new, yet Solomon has averred that there is nothing new under the sun. What I shall say this time will be an old tale to some readers, but quite a new one to a large number, for the new series of the FLORAL WORLD has added some thousands to the circle amongst which it moves so modestly and with such general approbation. I must, therefore, beg those who are already in the secret to read this as though they had read nothing else on the subject before; and as for our thousands of new readers, I have no doubt the whole story will be new to them; and I finish this preface

The arcanum to be expounded is the Plunging System. It cannot be my invention, because plunging in some sort of way was done before I was born. But I alone, perhaps, of all practical and experimental cultivators, have developed the plunging system; it is with me a matter partly of choice, partly of necessity, but altogether essential to my routine and range of practice, and a source of perpetual delight. All that I do is on a small scale. People

by expressing a hope that they may derive from it something

VOL. II .- NO. IV.

possessed of ordinary intelligence will believe and understand that. A Crystal Palace or a Battersea Park are not wanted for my experiments and comparisons, a few square yards of glass and ground suffice; ay, and the few that I have make more work than I can find time to attend to properly. I say this, because I shall have to describe the system in such a way as to show that it can be carried out on a large or a small scale, according to the means and tastes of the practitioner, and to encourage the possessors of small gardens. I wish it to be known that mine is extremely small, and without that plunging system would be (to me) unbearable at any and every season. In common with the thousands of detached villas that abound in the suburbs of London, the house is approached through a forecourt, and this fore-court is the scene of operations; it is kept at all seasons richly furnished, as gay as weather will permit, and undergoes some change every two or three weeks the whole year round. The plunging system is nothing unless there are at least four changes in the year—say in April to put out hyacinths and tulips, and in May or June to put out geraniums, calceolarias, and mixtures; in October for chrysanthemums, and in December for evergreens. But there may be twelve, twenty-four, or even fifty-two changes, if it is the taste of the proprietor to encourage change, and he has the means of keeping the wheel turning at that rate. At the risk of all that may be said of a man who praises his own work, I will at once say that I have never in all my travels seen a garden, whether of similar dimensions, or whether larger or smaller, kept so gay, so richly furnished, and so frequently changed in aspect as mine. What I do on a small scale, others may do on a large scale; and wherever the plunging system is fairly tried, it will be found to surpass in splendour, certainty, and variety, every other system that can be thought of to compete with it.

Let me endeavour to give an idea of the system as practised at Stoke Newington. There is a centre circular bed enclosed in a beautiful jardinet of Ransome's imperishable stone, and there are three borders, all of them faced with a handsome moulded curb, also in Ransome's stone. Two of the borders are planted with trees and shrubs, the principal border of the three being as richly furnished as possible with Aucubas, Hollies, Yews, Berberis, Box, Japan Privet, and other first-class evergreens. During winter this plantation is still further enriched by plunging amongst the permanent shrubs pot-plants of Cupressus Lawsoniana, pyramid Ivies, Irish Yews, and other characteristic plants, all of which are removed in spring to better quarters to promote their growth for the season, as the scene of the plunging is very much overshadowed by large trees. The front lines of these borders and the circular stone bed consist of cocoa-nut fibre refuse two to three feet deep. It is in these front lines that the plunging, par excellence, is carried out in the most complete manner, and a display of colour produced at all seasons of the year, the effect of which is greatly heightened by the depth of

green and richness of variegated foliage of the background.

Two remarks are proper at this point. In the first place, well-grown pot-plants, plunged in cocoa-nut fibre, have a much brighter,

a much more artistic and finished appearance, than plants of the same kind equally well grown in the open ground. The beautiful, clear, reddish-brown colour of the refuse by contrast, brings out every tint of green with peculiar brightness, and affords relief to every kind of flower. There is a peculiar charm about a well-furnished plunge bed if the material consists of cocoa-nut fibre; it is owing to the colour of the material, which sets off and brightens every scrap of vegetation, to which it serves as a groundwork. Another remark I must make, which may be of interest to some readers, though it arises out of my own professional duties and practice. The plunging system affords me the means of perpetually comparing species and varieties as to their habits and characters; and without it, such a book as the "Garden Oracle" would be impossible, for I am making notes in the fore-court for that work the whole year round. For example, I grow in pots collections of hyacinths, crocuses, tulips. geraniums, coniferous trees, ivies, etc., in some cases going so far as 100 to 500 varieties in one class.

These are potted and propagated as required, kept carefully labelled, and are variously brought into flower in pits, greenhouses. and open beds, and are brought forward when in perfection, and thus, during the greater part of the year, I have beneath my window a miniature flower-show. Do you remember the lovely weather we had from the 20th of February to the 8th of March? Well, on the 20th of February last, we put out a good collection of crocuses, tulips, and hyacinths, which had been brought on gently, and were in splendid condition of leaf and flower. It is true that on the 10th of March winter returned, and there was ample warning and ample time for them all to be taken up and put under cover, and no doubt nine-tenths of our readers, if possessing such a border, would have saved the plants. Mine remain untouched; snow and frost have taken the shine out of them, but when the weather mends, the borders will be touched over and refreshed, and there are plenty more bulbs to take the places of any that may be found past their prime. We potted 1000 picked bulbs of Hyacinths last autumn, and Crocuses and Tulips in proportion, so we shall do pretty well till the Dielytras, yellow Alyssums, and white Iberises come on to follow them. An amateur who has a passion for floriculture, and is compelled to reside near a town, and put up with a small garden, may have full gratification of his taste by following the plunging system, and may soon have better collections of plants than the majority of people possessing large gardens, and making pretensions to large practice. Yet a third remark. The system is admirably adapted to produce splendid effects by means of the cheapest plants, and a very large proportion of the subjects grown ought to be hardy, and adapted to bear some amount of rough treatment.

Now let me suppose some one of our readers anxious to carry into effect these proposals, with him or her the question will probably be, "How am I to begin?" I will endeavour to answer the question in such a way as to suit a majority of cases. The first thing to be done is to select the site for the operations, and here I would offer a word of advice to this effect—feel your way carefully, begin with

one border or so, and extend the system as you become accustomed to it, and equal to its demands, for it will swallow up many more plants than you have been accustomed to provide for the same space

when planting out was followed.

If I had to advise in particular cases, I know I should frequently purpose turling over many of the existing flower-beds, and reducing the area for display to very circumscribed limits; for in many small gardens the multiplicity of flower-beds is puerile, and makes one think of a doll's garden, or a farthing kaleidoscope. Of course we get into difficulties at this point; people are not prepared to give up their flower-beds, and do not quite see the way clearly to do anything with them but as they have been accustomed to. Well, I can offer an arcanum in this case, that is of nearly universal fitness. If there are groups of beds, and the desire is to improve the garden and reduce the extent of bedding, and make a first start in plunging, it will probably not be difficult to mark off certain of the beds to be planted with evergreen and flowering shrubs, with some good hardy herbaceous plants in front of them, and reserve the remainder for experiments in plunging. Let us illustrate this suggestion by a rough and ready example. Suppose a group of beds, as in the annexed diagram. We have here ten beds, and we want to reduce

1	1		2		3	
4		5		G		7
	8		9		10	

their number without making them one-sided. We have but to strike out, say, 2, 4, 7, 9, and we have six remaining, thus—



Now again, suppose that we cannot attempt to manage six beds by plunging, why not plant 5 and 6 with groups of hollies, or, if equally convenient (as it may be in a peat district), with hardy Rhododendrons and Azaleas, or with Pampas grasses and Tritomas, and a few other such striking and graceful plants, reserving the four outside beds for the flowers. I do not offer this diagram as illustrating anybody's garden, but to explain how easily the way to reform may be found by those who have reforming proclivities.

Plunging in common earth, that is to say, in the soil of the place, is possible, but not desirable. So we may use sawdust, or old tan, or even moss, or coal ashes. But there is nothing half so good as the cocoa-nut fibre; it is always clean and moist, never wet, never dry, pleasing to look at (as before remarked upon), harbours no vermin, and a lady careful of her hands, may work at plunging pots in it, and scarcely find one stain upon her fingers when the work is done. The next best thing is tan, the next best moss. Plunging in mould is allowable, but not advisable; but coal ashes are simply filthy, and to adopt them in the "plunging system," that is, as an element in a decorative system, is heresy; let no reader of the Floral World ever confess to it, for fear of anathema maranatha. With cocoa-nut and tan there is no need at all to make provision for the drainage of the pots, but in plunging in common mould or coal ashes, it is necessary to place a brick or an empty inverted pot under every pot containing a plant, to prevent the plant becoming

water-logged, and also to keep out worms.

But here is the cart before the horse: we want a Frenchman to arrange these ideas in proper sequence, for to the Englishman sequence is impossible. Well, if I tell all the tale, I suppose I shall be forgiven if I put the last chapter in the middle of the story. The question now is about the formation of the plunge beds. In places where stone or wooden edgings are already in use, there is not much You decide what is to be the width of the plunge border, and to that width the earth is to be dug out. If the border is narrow (say three feet), a depth of eighteen inches will be enough, because very large pots will not be used. But if wide (say six feet), it may be cut to a sloping bottom twelve inches at the extreme front to three feet at the extreme rear, which will allow of the largest pots or tubs with specimen conifers for the back row in winter time. But I say, find out all these particulars for yourselves; that is far better than following any ready-made rules, for in some places good plunging will be done with small pots, and in other places good plunging will be done in large pots; so again some practitioners will indulge largely in winter trees, and some will only care for summer flowers, etc., etc., etc., etc., etc., etc., etc. Where beds are cut in grass, it is an easy matter to take out the earth and put in suitable plunging material; where there is a grass verge to a border there can be no difficulty in cutting sharp to it; but in case of a box or thrift edging, the cutting must be done with care, or the edging may be killed. Put down the line three inches from the live edging, and cut down sloping, so as to spare the roots. If flooring boards, or any rough planking can be afforded, line the bed with timber, back and front, as shown in the diagram, where we suppose



the front to be clipped box or in any case a bold and substantial stone edging; next within that, as a lining, a plank, on edge; then a given breadth of cocoa-nut fibre for plunging; next a plank on edge as before, and then, beyond that, the undisturbed soil of the

garden, with a background of evergreens, etc., etc.

When all this is done, there must be established a regular system of cultivation to keep the beds supplied. If this cannot be done, better no plunging at all. However, I advise that one or two borders only be tried at first, and the system of growing will be found to be more simple than appears; and, in fact, its chief characteristic is that it is a system; every separate batch of plants must be prepared to come on in its proper time, with no excessive glut to bewilder the cultivator at any time, and never a deficiency of good things to make a cheerful display at any time in the whole round of the year.

I must now pause, but I will just hint that the principal subjects for plunging are, for early spring, Snowdrops, Crocuses, Hyacinths, and Tulips; for late spring, yellow Alyssum, white Iberis, rosy Aubrietia, sparkling Dielytra. For early summer, Stocks, Roses brought on in pits or by slow forcing, Cytisus, Deutzias flowered in cold pits, Rhododendrons, and a few of the more showy annuals grown in frames; for succession, Geraniums, Calceolarias, and all the rest of the summer flowers; for September, Sedum fabarium; for October, British ferns, then all fresh and bright, with any odds and ends of colour to light them up; for November, Chrysanthemums; for December, Ivies, Conifers, and Berry-bearing Shrubs, and so on to the spring bulbs again. But this part of the subject must be enlarged upon, and the next task will be to work out a good Plunger's Catalogue, which I shall attempt next month.

THE AURICULA .. .

BY JOHN WALSH.

CHAPTER III.—THE PINK AND PRIME FOR GROWTH AND BLOOMING.

NE of the most interesting things to be learnt on Auricula growing is the waywardness of the flower itself; like true nobility, it has individual character and a will of its own. The beginner, who is now looking for blooms of his best varieties, must not be surprised if some that are described as grey-edged make their appearance with edges of green; if some that are described as having the body colour heavily laid on and sharply defined, appear with a blurry and irregular colouring; and if some of the most constant of all appear "pineyed," that is, with the stamens showing above the tube. But I find I am insensibly driving into a groove that the Editor begged me to keep out of; he said to me, "Let the reader have your science

with as small an admixture as possible of technicalities, for terms

that we commonly use and understand are to the uninitiated scarcely better than a kind of slang." Now, I hope before I have done to have a chapter on properties, and to illustrate it, so that it may be useful for any length of time to come; but I must say a word upon the subject now just as an introduction to the selection I shall offer, to enable the beginner to appreciate the points that a florist must keep in view in estimating the values of auriculas. The reason I bring forward the list now is, that the golden moment has arrived for the inspection and comparison of Auriculas; and if there is any value at all in my list, it will be doubly, trebly valuable in the month of April than in any other month throughout the year.

What is there in nature more peculiarly noble and beautiful than the disposition of the flowers in a truss borne on a stout pillar, and the rich ground colour of the flowers in a first-rate show variety? Now, one of the most important properties is bold trussing, the pillar stiff and strong, the pips set out upon its summit symmetrically, and enough flowers open at one time to give the truss a rich and complete appearance. As to the pips, or individual flowers, they must be flat, stout, circular, quite smooth; the eye must be circular, the edging must be sharp and pure of its kind; the body colour heavy, velvety, and very clearly defined; and the paste, which is within and surrounding the eye, must be pure and mealy, as if just scraped off a butterfly's wing. But all this we must deal with some day at greater length, for it is of profound importance. Let us now pick out from the long list of named varieties a few that every lover of these beauties must have.

SELFS.

Lightbody's Meteor Flag.—This always disappoints at first, but surprises at last, does it not so, brother grower of these vegetable jewels? It opens thin, uneven, and of a dark slate colour, but soon becomes flat, fully expanded, and a glorious violet-blue. There is, perhaps, a little too much colour, but I know not how to beat it in the class of blues. The foliage is mealy, the plant grows well, and forms a noble specimen.

Martin's Mrs. Sturroch.—A really perfect flower, circular, smooth, and flat; the body colour rich dull maroon-crimson, the paste solid and pure, leaves mealy; not a strong grower, and not to be depended

on for a fine truss.

Spalding's Blackbird.—A very fine self, with rich and well-painted maroon body colour, superb in shape and paste. Rather weak in the stem, and when not well grown the pips hang, indicating weak footstalks. Yet no one can do without this famous show variety. It is one of the gems of the family.

Sim's Vulcan.—In the style of Blackbird, but darker and less perfect in colouring. It makes a fine figure when allowed to carry a great many pips in the truss, say nine to twelve at least, for thin-

ning ruins it.

Smith's Mrs. Smith.—A fine old variety, far from perfect, but calculated to delight the beginner, and quite incapable of offending the most experienced grower. The ground colour is extra dark, a

kind of black violet; there is scarcely enough paste. The foliage is

beautiful, and the plant is a good grower.

Smith's Formosa.—This is a charming mauve-coloured self, rich, lively, very attractive, and with only a few imperfections, that do not

obtrude upon the attention so long as the colour is fresh.

Netherwood's Othello.—A most superb show flower, the carriage grand, the flower large, opening flat and smooth; the body colour rich and dark, like most highly-finished violet velvet; the paste heavy and pure.

GREEN EDGED.

Hudson's Apollo.—One of the very best in style and habit. The edge is light green, bright and sharp; the ground colour seldom varies from a good tone of bright purple, and the paste is pure. It

is usually small in both leaf and flower.

Page's Champion.—This is probably the best green-edged flower known, though it is no easy matter to select one as the best in any class where there are so many. The edge of this flower is bright green and smooth; it is superbly coloured with a purple ground, and has an irreproachable paste. It is weak in habit, and has a small foliage.

Leigh's Colonel Taylor.—A fine large flower, quite circular, with beautiful green edge, black ground, circular paste, and pale lemon eye. Like many other first-class sorts, it is not over strong, but I never had occasion to consider it weak. Sometimes the ground

colour is defective, but it never entirely disappoints.

Booth's Freedom.—This is certainly a grand flower, the edge being of a lively green, the ground intense black, and the paste perfect. It is decidedly a bad doer, or (remembering the caution about using technicalities), it is delicate in constitution, and will puzzle the beginner to flower it well.

Moore's Violet.—This has an impure edge, and a broad ground of the loveliest shade of light violet. The paste is thin, and the tube soon fades from primrose to white. With all its feminine aspect and frailties it is one of the most attractive and pleasing of all auriculas, and therefore I put it down for the beginner's first purchase.

Beeston's Apollo.—A fine dark green edge, black ground, and pale lemon eye, a decidedly good flower, and the plant has a good

habit, and increases fast.

GREY EDGED.

Fletcher's Mary Ann.—A good grey edge and dark brown body colour, the paste not perfect, the edge yellow. The flower is large and smooth.

Sykes's Complete.-A fine edge and black ground, the paste

round, the eye yellow; first-rate.

Cheetham's Lancashire Hero.—I have always considered this the best of the class, the equal, in fact, and the proper companion to, Page's Champion. The flower is large, admirably shaped, the edge varies from green to grey (as is the case with many others), the ground is black, paste circular and pure, eye orange. The plant has a good habit and small foliage.

Fletcher's Ne Plus Ultra.—This is pre-eminently a beginner's

flower, because of its showy style; the accomplished grower may consider it coarse and uneven. It is very large. The edge is usually a good clean grey, the colour intense black, paste good, and eye pale yellow. With some growers it does not thrive, with others it is one of the best in respect of growth.

Waterhouse's Conqueror of Europe.—A fine old variety, with deep purple ground and orange eye; in all its characters splendid.

Chapman's Sophia.—A medium-sized rather starry flower, edge good, though broken in upon by the ground colour, which is a rich purple of the same shade as Matilda, the eye pale yellow. The leaves of this are serrated and slightly mealy. Its one great fault is the overpowering strength of the body colour; taken all in all, it is a gem of the first water.

Lightbody's Richard Headly.—The pip is a good shape. The edge and colour (black) are good, the paste is angular (a great fault), the eye orange. The leaves are pointed and lined with white.

Altogether a charming variety.

WHITE EDGED.

Taylor's Glory.—An old flower of the finest quality; the flower rather small, the edge clear white, the ground rich reddish-purple, the paste a true circle, the eye pale lemon: foliage mealy. Plant rather tender. It is impossible to see a good truss of this, and remain an infidel to the auricula. I am sure every one at all sensible of true beauty will believe in the flower if they will judge of its capabilities by Taylor's Glory.

Taylor's Favourite.—One of the best of this class, in which, in truth, there are but few first-rate. The edge is not so white as in the foregoing, but it is good; the colour is dark velvety maroon, the paste is good, the eye is clear orange: foliage silvery green, and

slightly mealy; plant robust, and carrying a fine truss.

Hepworth's True Briton.—A fine large flower, not to be depended on to open flat, the edge white and beautiful, the ground fine dark purple, the paste circular, the eye clear orange. Fine bold foliage

and habit good.

Lightbody's Countess of Wilton.—Not equal in style to the foregoing, but quite an exhibition flower, and the habit so good that it is equally adapted to the practised cultivator and the beginner. The edge is white and good, the colour dark chesnut, but marred through being splashed with meal. The plant is a good grower, with mealy foliage, carrying a grand truss.

Cheetham's Countess of Wilton.—A nice greyish white edge, solid purple colour, circular paste, and orange eye; foliage smooth. Not

first-rate, but nearly so.

Supposing the foregoing not to suffice for all our readers, I offer

the following selections of what I consider the next best:-

Selfs.—Kaye's Jupiter, Redman's Metropolitan, Clegg's Blue Bonnet, Barker's Nonsuch, Whittaker's True Blue, Sim's Eliza, Chapman's Squire Smith, Falkner's Hannibal (this and Blackbird are not wanted in the same collection), Headly's Aurora, Betteridge's Brutus, Gorton's Stadtholder, Lightbody's Admiral of the Blue, Spalding's Bessie Bell, Martin's Eclipse.

GREEN EDGED.—Ollier's Lady Wilbraham, Clegg's Lady Blucher, Hepworth's Robin Hood, Hilton's Freeman, Lightbody's Inkern:an, Lightbody's Lord Lynedoch, Lightbody's Star of Bethlehem, Beeston's Fair Flora, Dickson's Duke of Wellington, Dickson's Prince Albert, Dickson's Earl Grey, Smith's Waterloo, Niven's Lovely Ann (green or grey), Franklin's Colonel.

GREY EDGED.—Maclean's Unique, Popplewell's Conqueror, Kenyon's Ringleader, Dickson's Lady Jane Grey, Grimes's Privateer, Headly's Superb (not wanted with Waterhouse's Conqueror), Smith's General Bolivar, Headley's Stapleford Hero, Hedge's Britannia, Lightbody's Alma, Wilmer's Squire Chilman, Barlow's

Morning Star.

WHITE EDGED. — Gairn's Model, Heap's Smiling Beauty, Lightbody's Fair Maid (a most beautiful, indeed, a wonderful variety, but with faults that exclude it from the list of the very best,) Smith's Ne Plus Ultra, Campbell's Robert Burns, Clegg's Crucifix, Hughes's Pillar of Beauty, Lee's Bright Venus, Lee's Earl Grosvenor, Poll's Regulator, Taylor's Incomparable, Wood's

Delight.

I have bestowed some days in the preparation of these lists, and I hope they will suffice for my present contribution on my favourite flower. There is just one thing I must say, that I have thought of floral merit only, and not of price, and consequently some of those I name are dear, and some are cheap. The average price of auriculas is half-a-crown each for the cheapest; from that lowest scale the prices range up to twenty to thirty shillings each. As there are very few who grow them for sale, I would advise intending purchasers who cannot ascertain the prices of varieties in their own districts, to send to Mr. Charles Turner, of Slough, for his catalogue, for he is the largest trade grower of florists' flowers in the country, and in his catalogue the prices of all the good ones will be found, as in his admirably-managed nursery are to be found the plants. I have the Editor's permission in this case, which is peculiar, as it is the rule to avoid, as far as possible, naming traders.

SOME STRIKING PLANTS TO BE GROWN FROM SEED FOR THE CHOICE GARDEN.

BY KARL PROSPER.

N the preceding papers on sub-tropical plants, I have sought to ingratiate the reader into a love of true beauty, apart from that meretricious flat colouring and harsh outlines common to your bedding system. Therefore I have pointed out which are the best of the cannas,

the castor-oils, the solanums, and other fine plants that can be raised with such skill as most amateur gardeners possess, and at so trifling an outlay as to be obtainable, as one might say, for nothing. I shall

now enumerate some fine subjects that require no mysterious processes and no costly appliances, and which the lovers of true beauty ought to grow, for they have all the points of interest that belong to plants that are costly and of great renown. Without further pre-

face, I shall proceed.

LOVE LIES BLEEDING.—Amaranthus caudatus.—I have seen in a "choice garden" this splendid plant mixed with various others in a long border, and the effect of its long crimson tails, some of them two or three feet long, like great ropes of velvet, was truly delightful. Sow in a pan early in April, and place on a gentle hot-bed. If no hot-bed, shut up the seed in a frame; it will soon be up. Prick the plants out into a bed in a frame as soon as they are large enough to handle, and during showery weather in May, transplant them to the border, which should be deeply dug and, enriched with manure two or three weeks before the time of planting.

PRINCE'S FEATHER.—Amaranthus hypochondriacus.—Treat this in the same way as the last, but plant it further back. It makes a very effective bed, but is more effective if mixed with something

graceful.

Amaranthus melancholicus is the well-known claret-coloured beddirg-plant. It must be grown in the same way as the above, but it is well to sow the seed about the 15th of March. However, the

first week in April will do very well.

Arundo conspicua. - This fine grass grows in the style of the Pampas, but is neither so graceful nor so tall; but it is indispensable to the choice garden because of its peculiar beauty and its abundance of flower spikes from June to the middle of November. Sow the seed in April, and shut it up in a frame, keeping it moist by means of moss laid over, or a square of glass. When the plants are up, give air, and in June plant them out in some very well sheltered place six inches apart. In the month of April following, transplant them to the places they are to decorate, and there let them remain. The stations should be previously prepared by deep digging and abundant manuring. This grass loves moisture, but if planted in a wet place, is apt to die in winter; therefore it is safer to plant it on elevated spots, and make amends by giving plenty of water during the summer. In places where it is used largely, as at Battersea Park, they sow seed every year, to have a good stock of plants in case of losses in the winter. No doubt the last winter killed many. This is matter for regret, as the plant is not in its prime till three years old.

Artemisia annua is an elegant plant, with a peculiar and pleasing shade of green, and agreeably odoriferous. It is well adapted to introduce amongst flowers to give variety and relief, to help us out of our monotony, and our dead level of carpet patterns. Sow in March or April on any sunny border, and in due time plant out

where wanted.

THE BOCCONIA.—I have had the honour to introduce the Bocconia to cultivation on the continent, and while I remain here I shall hope to see it in the English choice garden. This plant is of most quick growth, the great leaves are deeply notched, and with much of whitish colour. The flowers are like poppies, but not singly, as we

are used to see poppies, but in great thyrses above the noble leaves, and the colour rose, or pink, or white. It belongs to the poppy family, so I shall not be suspected of making my description after the couleur de rose which the Gallic writers cultivate. To grow the Bocconia, sow the seed in gentle heat in February or March. April



BOCCONIA JAPONICA.

is time enough, but an earlier time is better. A nice hot-bed is the proper place for the seed pan, but as a frame becomes a hothouse when the sun shines, those who have no hot-bed may raise the plants in a frame only. When the plants have three or four leaves they should be potted separately in light rich soil, such as I have before advised for such things, and be kept in frames or in the greenhouse

till the beginning of June, and should then be planted out. In sheltered places they will all survive a mild winter in England, but in exposed districts they will probably perish. The most hardy of all are Bocconia cordata and B. Japonica, and these are also the two best for planting out. It would be well to keep a few in pots, shifting them on to pots of at least six inches diameter during the summer. These, the second year, would take the place of any that the winter destroyed. A good plan to protect such things in winter is to place over them large empty flower-pots, and cover the flower-pots with a heap of straw or cone of coal-ashes. Bocconia frutescens is equally adapted for the garden in summer, but is the most tender, and must be taken up before winter if it is desired to keep it.

Scorch Thistle—Onopordon acanthium.—This is supposed to be well known, but it is not, for many inferior plants are substituted for it. I advise that the seed be purchased under the Latin name, and that not a word be said about Scotch thistle. The proper place for it is in front of the shrubbery, it is too coarse for the flower-garden. Sow where the plants are to be, and thin them

to at least three feet apart.

Chamæpuce diacantha.—This is one of the most elegant and remarkable plants of late years introduced to our gardens. It is in the fashion of a dwarf thistle, the leaves lying flat on the ground; the colour of the leaves is a greyish-green, and they are formidably armed with long glistening silvery spines. The proper way to treat this is to sow seeds every year, as the plants are in perfection the second year, and after that may be expected to die off. Sow the seeds two in a pot, using 60-size, and place the pots in a gentle heat. Some of the seeds are a long time before they vegetate, therefore do not be in haste to throw them away. The plants need not be potted off, but in June may be planted out, and in September should be taken up for the winter. A rich mellow soil should be chosen, and the position should be sunny. In case the plants should not be of fair size by the middle of June, do not plant them out, but pot them separately in 60-size, and plunge them the first season. The next season plant them out in May. It makes a fine edging to a clump of any such noble plants as solanums, and is quite worthy to fill a bed.

PERENNIAL CUCUMBER—Cucumis perennis.—This is an unknown plant, to make it popular will be one of the duties of my stay in England. At home we use it to cover rough banks and tall trellises; it runs about freely, and makes a grand display of large hoary leaves. It is essentially ornamental. The plant is quite hardy, and displays its full beauty and vigour only when left several years in the ground. I shall not speak of other plants of the cucumber, or gourd tribes, because their beauties and uses are pretty well known.

Ferula communis.—This is a splendid fern-like plant, well adapted for the choice garden. Sow the seed in May in the open border in the kitchen garden or reserve ground, covering it with a tile till it germinates. Transplant them a foot apart, and let them remain till the second season, when they may be planted where they are to remain for embellishment; on the margin of the shrubbery, and near to water scenes, they are noble objects.

Ferdinandia eminens.—The noblest, perhaps, of all the race of sub-tropicals; the stately habit and the noble leaves are unsurpassed. It is a stove shrub, and therefore must not be planted out till June. The seeds require a brisk heat and some care, and the plants should be grown on as fast as possible. I ought to have noticed this earlier, because the seed should be sown in February or March. However, if sown now, they will make good plants by June, for they are of rapid growth. Where only a few are required it will be best to buy plants in June from a good nursery.

STRIPED-LEAVED MAIZE—Zea mays variegata.—This is, or nearly, as good as the variegated Arundo donax, which is sometimes described as the finest of all variegated plants. Sow early in April, in pots, in a moderate heat, and plant out in May. It grows four to five

feet high, and has beautifully-striped leaves.

Verbesina verbascifolia.—This is a fine companion to the stately Ferdinandia. Treat as advised for solanums in the January number, page 15. Here I pause once more, in a belief that I have made a little pleasant work for some of the gardeners. May none who

follow me be disappointed.

[Messrs. Hooper and Co., of Central Avenue, Covent Garden, have obligingly furnished a figure of *Bocconia Japonica*, to illustrate Mr. Prosper's glowing but strictly just eulogy of its beauties. We observe in Messrs. Hooper's catalogue good figures of *B. frutescens* and *Chanæpuce diacantha*.—Ed. F. W.]

CULTIVATION OF SALSAFY.

BY R. WHITEHOUSE.

HIS excellent root is not extensively known, and therefore cannot be said to be generally appreciated. Yet it is an excellent esculent, and deserves to be cultivated in every kitchen garden, for it has three good qualities. In the first place, it may be cooked several ways, and is always delicious; in the second place it comes into use during

always delicious; in the second place, it comes into use during winter, when the garden does not contribute largely to the table; and in the third place, the sprouts from the roots left in the ground all the winter may be used as a vegetable in spring, when, perhaps,

there is nothing to be got but cabbage and sea-kale.

We are now enjoying nice dishes of these sprouts, which are like asparagus, and very acceptable they are, for the winter destroyed our spinach, Brussels sprouts, and in fact every kind of Brassica, except small cabbage-plants, that will be of no use till quite the end of May. Therefore I advise those of your readers who happen to be unacquainted with this root to try a bed of it, or say just a small patch, and if they find it to their liking, they can next season grow it to any extent they please. I am cautious of recommending any one not acquainted with it to grow it largely at first, because experience has taught me that, as a rule, vegetables

that are not popular are generally worthless. However, this is not the case with salsafy, and I hope many readers of the FLORAL

WORLD will grow a bed of it this season.

The way to treat it is nearly the same as for growing parsnips and carrots, but it requires a rather richer soil than those roots, and therefore it is desirable to trench the ground deeply, and put manure at the bottom of the trench to coax the roots down, and prevent them forking. But if a piece of ground can be set out for the purpose that was heavily manured last year, deep digging will suffice, and as for the rest, it must be farmed out for sowing in the same way as a carrot bed. The soil I till is a rather dry and poor sand, and I find that the rows may be a foot apart, and when the plants are up, I thin them to nine inches apart in the row. But in those deep, fertile, sandy loams, in which carrots grow to perfection, I should put the rows fifteen inches apart, and I should thin the plants to a foot apart in the rows. As for the rest, I need say but little. Sow as early as possible in April; thin in good time, and keep down weeds. In November take up some for use, and store in sand, leaving a few for spring sprouts. The cooking is performed in precisely the same manner as that of parsnips, if they are to be served as roots. A more elegant way is to boil them till tender, then mash them with butter, and fry them in butter a nice brown. The flavour is then much like an ovster, and indeed this dish is sometimes called the "vegetable oyster."

As for the roots left in the ground, let them be covered with a ridge of clean sand or coal-ashes in March, and about six inches deep. From time to time, as the shoots rise from the roots, that is to say, the flower stems, cut them, and boil them, and eat them in the same way as asparagus. At a time when vegetables are usually

scarce, any really eatable dish is worth attention.

A SELECTION OF FIRST-CLASS HERBACEOUS PLANTS OF EASY CULTURE IN ALL PARTS OF THE BRITISH ISLES.

BY THE O'SHANE.



ERHAPS a concise selection of these may be useful to many who are acquainted with them as a class. I have taken some pains to make the following selection, and can confidently recommend them. I might easily have found one hundred rarer or one hundred more

difficult to grow or obtain, but my object has been to select one hundred which would give satisfaction to all, and in all parts, not doubting that those who procure and grow them will be led to make a fuller and more satisfying acquaintance with plants as beautiful as any known, and which our climate suits so well. They are as follows:—

Anemone apennina, fulgens, sylvestris, and coronata (in variety), Adonis vernalis, A. Japonica Honerine Jobert (and other varie-

ties), Aquilegia alpina, Californica, and cœrulea (three quite distinct and each first-rate), Delphiniums (in splendid variety according to taste), Pæonia, ditto, Ranunculus amplexicaulis acris pl. (more useful and easier cultivated than the white), R. aconitinus fl. pl., Epimedium pinnatum elegans, Dielytra spectabilis, Baptisia australis or exaltata, Coronilla varia, Galega officinalis alba, Lathyrus grandiflorus, L. latifolius albus, L. rotundifolius, Orobus lathyroides, vernus, and varieties, Lupinus polyphyllus, Achillea Ægyptiaca, Eupatorium, aurea, and millefolium rosea (a fine thing), Aster versicolor, elegans, turbinellus, and amellus, Echinops Ritro, Pyrethrum roseum (single and double in variety), Phlox (a varied selection of the herbaceous kinds), Campanula carpatica (and its white and "bicolor" varieties), C. persicifolia grandis, macrantha, pyramidalis, and rotundifolia, Statice latifolia, Papaver bracteatum and orientale, Gentiana asclepiadia, Iris pallida, I. Kæmpferi (and its varieties in good light and deep soil), I. Germanica (this may be had in striking and beautiful variety), I. De Bergii, pumila, Jacquesiana, amœna, flavescens, florentina, and ochroleuca, Tritoma grandis and glaucescens, Stenactis speciosus, Hesperis matronalis pl. (in variety), Cheiranthus Cheirii (fine old double varieties), C. alpinus, Hoteia Japonica (our climate is not everywhere good enough to well develop this, therefore it should have a good position and good soil, and even with that I have never seen it so fine as when well grown in pits), Potentilla (the best varieties), Trollius napellifolius, Pentstemon (in fine variety), Veronica amethystina and corymbosa, Erodium Manescavi (nearly always in flower), Tradescantia virginica (and its delicately tinted varieties), Lythrum roseum superbum, Hemerocallis flava, Pyrethrum uliginosum, Armeria cephalotes, Geum chilense, Physostegia virginiana, Achillea Ptarmica, fl. pl., Symphytum bohemicum and caucasicum, Eryngium amethystinum and alpinum, Dodecatheon Meadia (and varieties), Monarda purpurea and didyma, Salvia argentea (chiefly for its fine foliage), Corydalis nobilis (rare), Helianthus multiflorus pl. (rather coarse, but very showy and good), Alyssum saxatile, Iberis "corræafolia," saxatilis, Tenoreana (a charming plant on light soil) and corifolia (very dwarf), Arabis albida, of course, Aubrietia grandiflora, Hepatica angulosa and triloba (in variety), Helleborus niger major and atrorubens, Centranthus ruber (and white variety), Epilobium angustifolium (and white variety), these are native plants, robust habit, almost coarse, but withal very showy and fine; Czackia liliastrum (liable to tempt slugs), Pentstemon procerus, for fronts of borders; Sedum "fabaria, handsome of habit and profuse of bloom-a capital late summer and autumn plant; Rudbeckia Newmannii, a splendid thing in rich soil: Gaillardia pinnatifida, grandiflora, maxima, and Loeselii, Funkia grandiflora (sweet, white, and beautiful, seems shy to flower), Litho. spermum fruticosum (splendid for front of borders or rockwork), Pinks (especially the stronger ones in the way of Anna Boleyn, and there are some nice newish things in this way); Carnations and Picotees (in strong good kinds), Linum narbonense, alpinum, monogynum, and perenne album, Malva campanulata (a beautiful scarce trailing kind, very charming in flower, perhaps not hardy, but might prove so on rockwork), Genista sagittalis, Ononis arvensis

alba, Anthyllis montana (an exquisite dwarf plant), Astragalus Monspessulanus, Vicia cracca (makes a fine border plant), Œnothera macrocarpa and acaulis, Morina longifolia, Liatris spicata, Doronicum caucasicum, Lobelia, the herbaceous kinds in variety (they perish in winter on wet soils, and in such places should be stored in shallow boxes under stages, or any such place); Platycodon grandiflorum, Asclepias tuberosa, a good thing in good soil, and when well established; Onosma taurica, Anchusa italica, Phygelius capensis (best against walls, etc.), Euphorbia eyparissias, Helonias bullata (moist place).

POLYSTICHUM ANGULARE.

OLYSTICHUM ANGULARE is the most generally useful of this genus of British ferns, both because of its sportiveness and ready adaptation to garden culture. It is beautiful in all its forms, and a few of them are exquisitely beautiful, and as well adapted for the green-

house or the fern-case as any ferns we possess. In its normal form this is a rather robust habited fern, with a tufted scaly caudex, and numerous lax, spreading, lanceolate fronds of a full bright green colour, varying in length from two to four feet, of which the densely scaly stipes extend to about one-sixth of the entire length. The fronds are twice-divided, with numerous narrow pinne, the pinnules of which are almost crescent-shaped, with a distinguishing anterior lobe; they are more or less serrated, the serratures tipped with a slender bristle. The fructification is plentifully disposed on the upper part of the frond, the sori are small, numerous, brown, and

add much to the beauty of the under sides of the fronds.

This fern is strictly evergreen, the old fronds retaining their form and fine colour till long after the new growth has overspread them, so that sometimes it is advisable to cut away the whole of the old fronds when the crowns begin to push in spring. It is widely distributed, and appears to range over cold and warm climates with indifference, being found in Sweden and Norway, Spain, Italy, Greece, the Canaries, Azores, in Abyssinia, in many parts of North and South America, in India, Java, China, and Singapore. In Britain it is plentiful in the south and west, scarce in the north; it attains its highest luxuriance of growth in districts where both the soil and the atmosphere are humid, and though one of the hardiest ferns known, it is much influenced by temperature, and its warmer habitats present us with far finer examples than the colder ones. To cultivate it is a most easy matter, in which respect it differs from P. lonchitis, which is unquestionably a difficult fern to manage. P. angulare requires a soil in which mellow loam predominates; but it will grow well in peat or leaf-mould, or in common garden soil, improved by an admixture of cocoa-nut fibre refuse. The smaller kinds, when grown in pots, require the compost to be prepared for them with more care than the robust forms; and the best mixture



for them is one consisting of equal parts loam, peat, leaf-mould, and silver sand, the pots to be well drained, the plants kept shaded from sunshine, and moderately watered. Though partial to a moist atmosphere, this fern is not thirsty; indeed, we have known the pretty variety proliferum, which is largely grown in the nurseries about London to furnish fronds for bouquets, to be as dry as dust for weeks together, and yet not betray the slightest distress.

The best of the varieties (about seventy in number) are the

following: -

Brachiatum.—Fronds densely leafy, and very scaly, the pinnules much overlapping, and cut into many small-toothed divisions; height

twelve to twenty inches.

Concinnum.—Spreading, rich, and plumy, very bright shining green, the pinnæ narrow and tapering, pinnules distinctly stalked and spiny toothed, extremely graceful and bright; height thirty to forty inches.

Cristatum.—The same as the species, except that every frond terminates in a crispy crest or tassel; height twenty to forty inches.

Gracile.—Fronds broad, thin-textured, tapering, and spreading, the pinnules distant, narrow, and toothed. A light and elegant

variety; height twenty to forty inches.

Grandiceps.—Fronds deep green, the pinnæ more or less partially or wholly divided into pinnules, or lobes, which are spiny, each pinna ending in a spreading crest, and the upper part of the frond branching into numerous divisions, each of which is terminated by a crest; height twelve to twenty-four inches.

Grandidens.—Thick-textured, dark green fronds, irregularly divided, the secondary divisions deep cut into sharp conspicuous teeth. A handsome variety, adapted for pots and cases; height

twelve to twenty inches.

Imbricatum.—Spreading, twice-divided fronds, the colour a fine rich deep green, the pinnules overlap, which gives it a rich appearance. A very fine exotic-looking variety, adapted for the case; height

twelve to twenty inches.

Latipes.—Fronds on long stipes, which are very scaly, very broad, deep green, pinnæ rather distant, and almost wedge-shaped, pinnules much toothed, distinctly lobed at the base, and the pinnule next adjacent to the rachis very much lengthened. A bold, handsome, yet graceful variety for the rockery or for pots; height thirty to fifty inches.

Plumosum.—Very spreading wide fronds, pinnæ more than an inch wide at the base, suddenly tapering at the point, pinnules crowded, deeply cut into narrow lobes. A rare variety, well adapted for the open air, pots, or cases; height twenty to forty inches.

Proliferum.—Very spreading broad fronds, of a deep green colour, the younger ones having a somewhat hoary appearance, the pinnules are crowded, slender, and conspicuously stalked; the appearance of this fine fern is greatly improved by the crowded state of the fronds, owing to the plentiful production at their base of bulbil plants; these may be taken off at any time, and if planted in sandy peat, will root immediately, and soon begin to produce others like themselves.

This is undoubtedly the best variety, and essential in even the smallest collection of ferns, and it may be grown equally well on a shady rockery, in a greenhouse, or a fern-case; height eighteen to thirty inches; but in this respect variable, some specimens never making fronds more than twelve inches long.

Proliferum Wollastoni.—Less profusely bulbil-bearing than the last, and differing from it in having more distant divisions and the exceedingly finely-divided condition of the lower parts of the fronds, which renders it a most elegant object; height thirty to fifty inches.

Parvissimum.—This is a diminutive fern, bearing at first sight some resemblance to proliferum, but soon found to be quite distinct. The fronds are lance-shaped, the pinnæ broad and overlapping like the tiles of a house, the pinnules are not deeply cut, and are all elegantly rounded on their anterior edges, and finely toothed. It is one of the prettiest miniature ferns in cultivation. This variety has been received from Messrs. Lucombe, Pince, and Co., Exeter; all the foregoing have been obtained from Mr. Sim, of Foot's Cray, Kent.

S H.

CULTIVATION OF ASTERS FOR EXHIBITION AND DECORATION.

BY WILLIAM HILLS.



N the April number of the Floral World, 1866 (page 116), I presented the reader with a note on stocks and asters, to which I will now refer them, as in it will be found some useful information on the varieties that are most likely to give satisfaction. I shall now speak only

of the cultivation.

To begin at the beginning, it is very important to get good seed; and in order to do this, it is necessary to pay a good price, and to have it from a respectable house, which will be a guarantee for the genuineness of the article purchased. Much, however, of the want of success with asters arises from sowing too early, and neglecting to give them sufficiently generous treatment, so that the seed often gets blamed when it is the management which is at fault. Asters should not be sown before the latter end of April or the beginning of May; nothing whatever can be gained by sowing earlier, but much is likely to be lost, for if they receive a check during growth from a few days' extra cold weather, it renders them very liable to the attacks of green-fly, or any other kind of vermin; and after a sudden severe check of this kind, it is almost impossible ever to get them up to their standard of beauty. Therefore, remember first of all, that moist warm weather is most favourable to this tribe of plants. Many among our amateur friends look at the pictures of the beautiful varieties lately brought out, and then heave a halfsigh, as much as to say, "Ah, that is all very well in a nursery or in a picture, but it is quite out of the question for me to produce such flowers as those." Now, my dear friends, this is not by any means the case, and if you will only give a moderate amount of care and attention, you will have flowers this year which will be both a credit and a pleasure to you, and equal to any picture of asters ever

painted.

They should be sown on a spent hot-bed, or in pans or pots placed in a close pit or frame; the plants will make their appearance in a few days, when you must give them plenty of air. When they are about an inch high, spread some fine soil over the surface of a slight hot-bed, into which transplant your seedlings at a little distance apart, and let them remain there till they are three or four inches high. Now that asters are so perfect in shape and quilling, and of every variety of colour, from white to a deep crimson and purple, a well-arranged set of them would have a fine appearance on a ribbon border or in a geometric garden, and would remain gay from the 1st of August until cut down by frost. therefore, you desire to grow them either in ribbons or masses, prepare the soil generously with old dung; that which suits them exactly is a mixture of light sandy loam and rotten dung. When the ground is in good order, wait for a favourable opportunity, and after some nice showery weather, transplant them into the border, and water them for a few days; should the weather prove very hot and dry, the watering must be continued, for if they get the least check through drought, the insects (which seem as though they were always waiting in ambush) will pounce upon them and claim them as their own. Should this misfortune occur, it will be advisable either to syringe or sprinkle with tobacco-water, taking care that some of it goes into the centre of each plant, when the enemy will be effectually dislodged.

Supposing that it is desired to grow them for exhibition, the plants should be finally planted out for blooming in well-manured soil, in rows ten inches from each other. Keep them well watered during dry weather, and quite free from weeds, stirring the ground between the plants occasionally until about the first week in August, when it will require a good top-dressing of rotten dung from an old hot-bed, and then a good soaking of water if the ground appears at all dry. As soon as you have given them the top-dressing, procure some small stakes and tie them up; when the buds are sufficiently developed for you to see which will make the best flowers, thin them out, leaving only three or four to each plant. The flowers to be exhibited must be protected from the wet and from

injury by the wind.

Among the greatest enemies of the aster may be reckoned the slugs, and in places infested by these pests it is a somewhat difficult matter to protect them. Lime is useful in dry weather, but its efficacy is destroyed by a shower, and so a more desirable way is to trap them; this may be done by placing heaps of two or three fresh cabbage-leaves on either side of them, which will generally attract the rascals; but perhaps the most effectual way is to take out a lantern at night and search the plants individually, when, with a little perseverance, they may be soon got rid of by this style of hand-picking.

THINNING THE CROP OF FRUITS IN THE ORCHARD HOUSE.

BY HENRY HOWLETT.

ATURE provides means for thinning the crop on wild fruits in seasons of unusual plenty, and probably if the natural processes of thinning were aided by artificial thinning, many of our wild fruits would improve, irrespective of the more definite mode of improving by

But it is quite certain, that to allow trees to bear beyond a certain limit, tends to throw them back in history, and cause them to revert back some degrees towards the natural types from which they sprung. We do not mean to say that a Victoria plum will become a sloe or a bullace by neglect; but if the tree be weakened by a succession of very heavy crops, it will at least become comparatively unfruitful, and what fruits do appear will be small and flavourless compared with those from a tree in full vigour. As a general principle, then, the appearance of a large crop should be the signal for thinning, and our advice to the possessors of fruit crops, whether under glass or in the open air, is, Thin the fruit. Remove a few at once from every part of the tree, so as to leave the residue pretty evenly distributed. After the lapse of a few days, thin again, and so on till there are no more left than the tree can fairly bring to perfection, consistent with its age, and size, and vigour.

But the matter does not end here. Have you not observed that the same variety of fruit varies in flavour considerably? You taste a Royal George peach in one garden, and it is delicious; in another garden you taste a fruit of the same variety, and it is execrable. You solve the riddle of the difference, perhaps, by referring it to influences of soil, climate, or, as the gardener will perhaps suggest, "We had a sharp east wind when the fruits were stoning." Now, generally the flavour of fruits depends on early and judicious thinning. You can only get so much out of a tree. If you have quantity, you must lose quality; and if high flavour is desired, we must give the same rule as before to obtain it, and say again, Thin the fruit; and begin the thinning before the strength of the tree has been severely taxed

in the first swelling of the crop.

Growers of forced fruits get such advice as this frequently in our calendarial notices, but we fear that growers of fruit in orchard houses and the open quarters do not take the advice to themselves as they should, for in almost every garden of the country the trees and bushes have on them larger crops of fruit than they can bring to perfection; and to leave the trees to fight it out in their own way will result in flavourless production, and the weakening of the constitution of every tree so taked beyond its strength. Short hints are sometimes more effectual than elaborate essays; therefore we close here with a repetition of the words, Thin the fruit before the trees are weakened.

NEWS OF THE MONTH.

EXHIBITIONS OF SPRING FLOWERS .- There have been held in London during the past month three exhibitions of spring flowers : namely, at the gardens of the Royal Horticultural Society, March 19; in the gardens of the Royal Botanic Society, March 23; and a continuous show by Messrs. Cutbush and Son, of Highgate, at the Crystal Palace. In the former two displays, Mr. William Paul, of Cheshunt, was the largest contributor, and in the quality of his flowers distanced all competitors. Some beautiful examples have been shown by Mr. Kirtland, of Albion Nursery, Stoke Newington, and Mr. Cutbush, of Barnet. Early tulips have been presented by Mr. W. Paul in the utmost profusion, and of remarkably fine quality, with collections of Narcissus, forced Roses, and Lilies of the Valley. Peculiarly interesting have been the fine displays of Cyclamen Persicum, in which Messrs. E. G. Henderson have, as usual, presented large and beautiful collections; but this time Mr. Wiggins, gardener to W. Beck, Esq., of Isleworth, presented a dozen Cyclamens that for style and finish were not only better than any others, but afforded a real surprise to experienced growers of this charming flower. The lastnamed exhibitor has taken the lead, too, this season in Chinese Primulas, showing handsome plants covered with flowers of immense size, some pure white, others deep rosy crimson. There have been none to equal them, and of course they have taken the highest honours. Mr. Wiggins's plants were grown from seed of "Williams's strain," which is well-known to be one of the best. Amongst things curious or particularly interesting, we may note the following: -From Mr. Cutbush, of Barnet, Prunus Sinensis alba flore pleno, that is the double white flowering Chinese plum, as beautiful as the double flowering cherry, and much better adapted to form a neat conservatory tree. From Mr. Cruikshank, gardener to J. Lloyd, Esq., of Watford, Verbena Beauty of Langleybury, a beautiful flower, white with lilac stripes. From Mr. Paul, Narcissus Queen of the Yellows, the most beautiful in a collection of about thirty sets. From the same, Rose (H.P.) Cœur de Leon, a fine stout globular flower, the colour rich purplish crimson. From Mr. Watson, of St. Albans, Tricolor Geranium, Mrs. Dix, a compact dwarf-growing kind, with flat round leaves, edged with gold yellow, the zone olive and bronze overlaid with deep red, remarkably handsome. From Messrs. E. G. Henderson and Son, Pyrethrum Golden Feather, a yellow-leaved bedding plant, which promises to be highly effective in the parterre. From the same, Tricolor Geranium Emma Cheere, which has a lemon-coloured margin, and a fine zone shading from chestnut to bright vermilion red. Amongst many new orchids shown, were two of great interest from Mr. W. Bull, of Chelsea. The old Phajus grandifolius was shown with superbly variegated leaves. There was also a pretty group of the diminutive and charmingly elegant Odontoglossum Alexandra, which flowers most freely in small pots, the flowers varying from pure white to white with brown spots. Every lover of orchids should look after this gem; they need not be told that at present it is costly. The exhibition of the Royal Caledonian Society took place at Edinburgh on the 20th, on which occasion the leading exhibitors of hyacinths were Messrs. Downie, Laird, and Laing: and in the amateur classes Mr. Cowe, gardener to H. W. Hope, Esq., Luffness, made the best exhibition, which indeed was remarkable for excellence. The Liverpool Spring Show was held on the 13th, and was quite a brilliant affair. The principal exhibitors of hyacinths here were Mr. Davies, of Liverpool, and Messrs. Cutbush and Son, of Highgate. Each of these exhibitions has had to contend with dreadful weather, yet the attendances have been good, proving that Flower Shows retain their popularity, and if known to be good are pretty sure to be supported. The following are selections of the most beautiful varieties in the several classes :-

Hyacinths.—Lord Wellington, Solfaterre, Grand Lilas, Grandeur à Merveille, Charles Dickens, Von Schiller, Auricula Oog, very dark violet pips, with radiating white or pale eye of great substance; Gigantea, Koh-i-Noor, General Havelock, Macaulay, Queen of the Netherlands, Prince Albert, Lord Palmerston, Mont Blanc, Noble par Mérite, Baron von Tuyll, Josephine, a very rich dark vermilion, and pips of fine substance; De Candolle, very pale blue, good; Snowball, one of the best of the whites; Milton, fine deep ruby red; Pieneman, a large pip of great substance, but loose in the spike; Lamplighter, blackish blue, with pale eye; Howard, Mimosa, Seraphine, Koh-i-Noor, Alba superbissima, one of the best whites; Mont Blanc, Lina, beautiful in finish and colour; Miss Nightingale, Victoria Regina, Leonidas,

Le Prophète, Duke of Wellington, Emmeline, Cavaignac, King of the Blues, Blondin, Fernck Klian, Grand Vainqueur, Haydn, Sultan's Favourite, Mrs. James Cutbush,

Orondates, Argus, Ida, one of the best yellows; Princess Helena.

Tulips.—Proserpine, violet-shaded rose; Keizer Kroon, deep red, edged with yellow; Couleur Cardinal, deep scarlet shaded with violet, small but effective; Fabiola, rosy purple and white; White Pottebakker, Van der Neer, violet-shaded rose, Tournesol, Vermillon Brillant, Globe de Rigaud, Duke of York, red edged with creamy white; Queen, white, feathered with crimson; Bride, crimson and white; Thomas More, beautiful deep orange buff; Archduc d'Autriche, superb in form and colour; Leonarda da Vinci, a fine double red; Duchess of Parma, Stella, Canary Bird.

Narcissi.—Bazelman Majer, Lord Canning, white, with a yellow cup; Cleopatra, with an orange cup; Jocrisse, Parfaite, and Regulus; Grand Monarque, Gloriosa, the latter a fine white, with a deep yellow cup; Queen of Yellows, small.

in great bunches, clear yellow.

Crocuses.—Sir Walter Scott, a large variety, lilac striped with white; Cloth of Silver; Mammoth, large-flowered white; Princess of Wales, a fine pure white; Princess Alexandra, white, pencilled with purple; Prince of Wales, bluish violet; David Rizzio, Sir John Franklin, purple; Golden Yellow, Albion, Victoria.

GROUND VINERIES.

(Read by Mr. Broome, of the Inner Temple Gardens, at a meeting of the Central Horticultural Society, February 26.)



OW that the gardening world is every day becoming acquainted with the great utility of these structures, I have thought a few remarks, based upon practice with Wells's ground vineries, might by many be appreciated. The lady and gentleman amateur, the scientific and practical gardener, have already derived much advantage and pleasure from their

use, and at this moment in many gardens where horticulture is carried out upon just principles, these structures are used and recommended. Upon their first appearance in gardens they were exclusively employed for grape-growing, and were carefully stowed away during the many months in which the vine is dormant; now they are kept in active operation during the whole year. The lady amateur finds that in them she can manage a crop of grapes, then bring on a few plants for late autumn and Christmas flowering, and afterwards occupy them with a few miscellaneous floriculture pets, bedding, and other plants, whilst by others they are used for the protection of salading, etc. In the present month many ground vineries are devoted to forcing rhubarb, and I have seen a hot-bed made for them and covered an inch thick with ashes, into which are plunged pots of Dutch bulbs, byacinths, tulips, etc.; and others, again, are used in a similar manner for the propagation of bedding stuff,

and raising seeds of tender plants.

The scientific and practical gardener can apply these miniature houses to a thousand different uses. But a few days ago I saw a fourteen-feet length filled with hyacinths and tulips, which are intended for our great spring bulb shows, and nothing could exceed the luxuriance and vigour they possessed. I have likewise seen ground vineries applied to the growth of the Neapolitan violet, and beautifully-coloured blossoms were being gathered when not a vestige of flower was discernible in the old-fashioned, dark, dismal box-frame, although both were placed near each other, and were subjected to the same and equal management. The plan of arranging the ground vinery for this purpose was extremely simple. In the month of October last, when all the fruit had been cut from the vines, a bed of the same area as the vinery was marked out, round which common bricks were laid two deep; the bed thus formed was filled with coal ashes, and the violets, which had previously been potted in 32-sized pots, were plunged in it. The plants were thus exposed to intense light—an agent most essential, as all gardeners are aware, to the well-being of this plant. The arrangement for giving air is likewise so perfect in these structures, that the violets can be exposed wholly in propitious weather; and should it be

mild with moisture falling, the lids or sides can be raised nearly horizontally, thus exposing the plants to air, whilst affording protection from wet. During the inclement weather we had this winter the vinery was covered with litter, and thatched hurdles placed together over the whole in the shape of a span roof. This protection bade defiance to cold 9° below zero.

During the past season I have seen some magnificent crops of grapes under these ground vineries. The bunches were of a good size, the berries well swelled and above the average size, with the colouring as perfect as in any that have been cut

from more spacious houses, and the flavour was exquisite.

I find many growers, elated with the success of these vineries, intend applying them to the growing of stone fruits, such as peaches and nectarines, the trees being planted out and treated precisely the same as the vines. The slates will be laid down and perforated at regular distances, so as to admit pegs for the purpose of pegging down and laying out the branches. The roots being free to act on the outside, as in the case of vines, no watering is necessary, as when these fruits are grown in pots upon the orchard-house principle; and the moisture evaporated from the slates, with which the wood and foliage are in contact, prevents red spider, thrips,

and other insects from multiplying.

I find the best method of cultivating fruits under Wells's ground vineries is as follows :- At one end of the vinery a hole two feet square, and of about the same depth, is dug out and filled with a compost of good loam, rotten dung, and a little road sand; these should be well incorporated together, previously throwing in about one and a half peck of bones, merely bruised, to afford drainage to the mass, also to feed the vines during hot weather, or when the heat is so great as to rob the plant of its natural moisture. The bones will likewise absorb the fluids passing down to them more readily by being bruised. All being thus prepared, the vine is turned out about the middle of March, providing the weather is open and mild, the cane being introduced and pegged down. Air should be admitted at ten o'clock a.m., by raising slightly the lights; this, with the additional air from the bottom of the frames, will serve to check the vines from making too quick and premature a growth before the season is sufficiently advanced to assist the formation of the young parts. The cases should be closed again about two p.m., if possible securing a little atmospheric warmth, and the vines should at this period be slightly syringed; the moisture will aid the expansion of the bark and the bursting of the young buds and leaves. This treatment should be continued until the flowers are expanded, when syringing must be entirely suspended, and air admitted upon every opportunity. As soon as the flowers are set, I find moisture applied in the form of vapour highly beneficial; this can be obtained by pouring tepid water upon the slates. Atmospheric warmth is secured throughout the day, and causes the moisture to evaporate, thus charging the internal air with an agent highly beneficial. As soon as the grapes have attained the size of sweet peas, the bunches should be thinned, taking out all ill-shaped and deformed berries, also all those which are in immediate contact with others, taking care not to remove all the interior berries, or the bunches will be loose and ill-shapen. At this period the structure should be kept close, and as much warmth secured as possible, as the critical time of stoning will have arrived, and a check would prove highly injurious. As soon as colouring commences, as much air should be admitted as is consistent with safety from chilling, and the vinery should be closed sufficiently early to secure, as before stated, as much natural warmth as possible. If this course be pursued, I feel confident every success will attend the operator, and will well repay him for the pains he may bestow; the weight and quality of the fruit will equal, if not exceed, that which is grown in extensive vine-houses.

I have this winter seen a very happy adaptation of the ground vinery. One of the fourteen-feet vineries was selected, a site facing south was arranged, a pit dug three feet deep, and the sides bricked with four and a half inch work two feet above the ground level; upon the brickwork was laid a wooden plate, and to this the vinery was fixed, being screwed down at the four corners of each division. The pit was then filled with cocoa-nut fibre, and such plants as fuchsias, pelargoniums, and bulbs were placed in it. These grew with great luxuriance, and, as in other cases where they were all covered with litter and the thatched hurdles, resisted the intense frosts we experienced in January. The same vinery pit is at this moment filled with fermenting material, and rhubarb, sea-kale, and salading are being cut, while there are cucumbers climbing along the roof and looking as luxuriant as upon

ridges in summer. Dutch bulbs are also being brought out weekly for the drawingroom. This plan is merely an enlarged idea of what was before exemplified, and serves to prove how valuable ground vineries are to the horticulturist.

THE CINERARIA.

BY MR. CHARLES TURNER, OF THE ROYAL NURSERIES, SLOUGH.



HEN we consider its diversity of colour, its adaptation alike for the conservatory, the drawing-room, or the bouquet, its bright and cheerful appearance at a time when there is a dearth of other flowers, and, in many cases, its fragrance, which reminds us of the sweet scent of the hawthorn, we can hardly be wrong in affirming that we do not possess

a more useful plant than that of which we now propose to speak briefly—the

Cineraria.

Comparing the Cineraria of our day with its ancestors, we are struck by the great progress which has been achieved by the florist. A few years ago and the petals of these flowers were few and far between as the sails of a windmill, but now we have a symmetrical form and compact growth, in combination with the most varied and effective colours. Only of late admitted to our greater exhibitions, it is now acknowledged by all to form one of their most interesting and important adjuncts. For the ball-room or the banquet, few decorative plants are so appropriate -the crimson and rose-edged varieties, in particular, being most brilliant and striking by artificial light.

Such being the charms and capabilities of the Cineraria, a few hints as to its

management may prove useful.

If the stock is inferior, as it must be where it has been merely continued by reproduction, or by seedlings, which very speedily degenerate without skilful hybridizing and careful selections, it will be best to make a fresh start by procuring, before the winter sets in, a few plants of recent introduction and of distinct colouring from some reliable source. These should be grown on vigorously through the winter months, and will then make an abundant and, if kept in a cool situation, a lengthened display in the spring.

The most suitable soil is a mixture of turfy loam with rotten manure, leafmould, and river, or silver sand. A good drainage will lessen the danger of mildew; but, if this appears, apply sulphur immediately, and persevere till you have

mastered it.

Keep the plants as near the glass as possible, and give them air at every favour-

able opportunity.

When they have flowered and cease to be ornamental, they may be removed, if the weather is not too severe, out of doors, and placed at the foot or a north wall or hedge. In a short time they will be ready for cutting down, when they should be lightly surfaced with soil. As soon as the suckers break up, they may be taken off, inserted round the edges of pots or seed pans, and placed in a cool pit or frame. Sprinkle them occasionally until they are thoroughly established; harden gradually by more frequent admission of air, and re-pot in accordance with the regular development of the plant .- Gardener's Annual.

AMERICAN MODE OF GROWING BLACKBERRIES.—The canes are planted in rows 3ft. apart, and 3ft. apart in the rows. Over each row is stretched a stout wire at the height of about four feet, with stakes at proper intervals to support it at this height. As the vines grow they are tied to the wire, and bent down along the wire all in the same direction-that is, all towards the south, all towards the north, or in such direction as may be most convenient. The berries are borne on the wood of the previous year's growth. In the spring of each year, the bearing wood of the year before is cut out and removed, and the new shoots are tied to the wire, the lateral shoots of the new wood being at the same time cut back within a foot of the main stalk. Thus the whole labour of trimming and training the vines is performed at one operation. It is better to manure in the autumn, and this all-important matter should be attended to every year.

NEW PLANTS.

YPELLA CÆRULEA, Blue-flowered Cypella (Bot. Mag. t. 5612).— Iridæ. A superb stove irid, native of the Brazils, long known in our gardens, and on account of its fine flowers and bold sword-like foliage,

deserving a permanent place in our gardens. The leaves in our gardens. The leaves are three to six feet long, the flowers vary in size, some of them being four inches in diameter, the blade blue, claw yellow-

ish, with transverse brown bands.

HELIANTHEMUM OCYMOIDES, like Rock Rose (Bot. Mag. t. 5621) .-Cistineæ. A beautiful hardy rock or sun rose, native of Spain and Portugal, where it inhabits dry, rocky hills. "The beautiful genus to which this belongs," says Dr. J. D. Hooker," was once a favourite in cultivation, but has of late given way before the rage for "bedding-out plants," which now monopolize the once varied borders of English gardens. No less than seventy species of Helianthemum, besides varieties, are figured in Sweet's valuable work on the cultivated plants of the order, published in 1830, and of these a great number are now no longer to be found in England. It is to be hoped that the time will yet come when the taste for really beautiful and interesting plants will reign again,



GRIAS CAULIFLORA.

a, the complete plant; b, portion of the stem, showing how the flowers are produced.



CYPELLA CERULEA.

and replace the present passion for a blaze of gaudy odours along our garden walks! GRIAS CAULIFLORA, Anchory (Bot. Mag. t. 5622).—Myrtaceæ. This is a plant of considerable interest in a horticultural, and perhaps also in an economic, point of view. In the first place, it is one of the most striking and easily managed of all those stately, palm-like, tropical, dicotyledonous trees that are so greatly admired, and are essential for the decoration of every stove; and in the next place, as the Anchovy Pear, it has long been, according to some authorities, in esteem as a West Indian fruit. The latter is a large, brown, fleshy drupe, like that of the mammelapple, which was, according to Sloane, pickled and eaten by the Spaniards in lieu of mangoes, and was sent as a great rarity to Spain. Browne, in his "Natural History of Jamaica," says nothing of the value of the fruit, but M'Fayden, who represents the English taste, says, "I cannot learn that the fruit is ever collected for use, or brought to the market." Grias cauliflora is a tree twenty to fifty feet high. It is found throughout the Spanish main, growing in clumps or thickets, and its flowers are deliciously sweet-scented. The leaves are deliciously sweet-scented. are crowded at the ends of the branches, three to four feet long, ten inches broad,

the flowers are on short, stout, branching peduncles, produced on the trunk far below the leaves. They are two inches broad, pale yellow, very fragrant.

PLEBOMA SARMENTOSA, Twiggy Pleroma (Bot. Mag. t. 5629).—Melastomacen.-A beautiful plant, discovered by Humboldt and Bonpland in the cool valleys of Peru, and since collected by Dr. Jameson at the same spot, altitude 8000 feet. It is a small, rather slender, subscandent undershrub, with ovate, entire leaves; flowers two to two and a-half inches in diameter, deep violet, and very handsome, well adapted for greenhouse cultivation.

Sarcanthus erinaceus, Hairy-stemmed Sarcanthus (Bot. Mag. t. 5630).— Orchideæ. This has been described under the names of Aerides rubrum and



HELIANTHEMUM OCYMOIDES.

Aerides dasypogon, but the name under which it is now presented is that by which it is known at Kew, and is most appropriate on account of the peculiarly shaggy or hedgehog-like appearance of the flower stems. It is a rare plant and a slow grower. It flowers in the India-house during the summer months, the flowers are white, touched with pale yellow, the lip

SIPHOCAMPYLUS HUMBOLDTIANUS, Humboldt's Siphocampylus (Bot. Mag. t. 5631).-Lobeliaceæ. A showy species of this fine genus. It is a small bush, three feet high, branching from the base. The leaves are ovate, toothed, dark green, the flowers are drooping, two inches long, bright scarlet. A fine plant for the warm greenhouse. The Royal Gardens are in-debted to Mr. Bull for this plant.

ONCIDIUM SERRATUM, Serrated Oncidium (Bot. Mag. t. 5632) .- Orchideæ. A remarkable oncid, fantastic in growth and colouring. The panicle is lax, many flowered, the sepals and petals are of a

brown, chocolate colour, tipped and margined with yellow, the lip has a bright yellow crest. It is a native of Peru, and must be regarded as a moderately "cool" orchid.

SYNADENIUM GRANTII, Captain Grant's Milkbush (Bot. Mag. t. 5633).—Euphorbiaceæ. Discovered by Captain Grant during his explorations of the sources of the Nile. It is a robust green bush of striking character. The leaves are very succulent, the involucre is a red purple cushion, the stamens have purple anthers.

Peperomia arifolia var. argyreia, Arum-leaved Peperomia; silver-striped variety (Bot. Mag. t. 5634).—This is the true H. arifolia. It has no stem, the leaves are alternate and peltate, and beautifully marbled. Its exquisite beauty renders it well adapted for the permanent borders of a tropical house.

LILIUM HEMATOCHROUM (HYBRIDUM), Blood-red flowered Lily (L'Illust. Hort. t. 503) .- Liliaceæ. This is a remarkable hybrid lily from Japan. It is of stately habit, with immense flowers of a sombre chocolate colour, deepening occasionally

to black, or brightening to blood red.

GLADIOLUS, CARDEN VARIETIES (L'Illust. Hort. t. 504).—Impératrice Eugenie.

Outer segments barred with clear carmine, inner segments mauve with carmine stripes, exquisitely beautiful. Reine Victoria, extra large, outer segments white, with faint bars of rose, inner segments richly blotched carmine. John Waterer, small, and apparently partaking of the habit of the Ramosus section, colour vivid vermilion, with mauve stripes in the throat.

RHODODENDRON MARGINATO PUNCTATUM (L'Illust. Hort. t. 505). hybrid, partaking apparently of the constitution of the Sikkim race. The flowers are creamy white, with an abundance of dark red spots on the whole surface of the upper petals, and on the margins of the lower petals. In the conservatory and

cool greenhouse this will be a most valuable decorative plant.

LARIX KEMPFERI (L'Illust. Hort. t. 506).—This, the most beautiful of the Larch tribe, is honoured with a poor portrait, but amends for that is made in the admirable analytical figures by Mr. Fitch.

incer-post for purchasers of plants. Seeds. etc.

A SELECTION OF FIFTY DAHLIAS.

Light .- Miss Henshaw, Lady Popham, Miss Pressley, Queen of Summer, Her Majesty, Charlotte Dorling, White Perfection, Lady of the Lake.

Yellow and Orange.—Chairman, Hugh Miller, Charles Turner, Willie Austin, Golden

Admiration, Bullion, Leah.

Crimson and Red .- Madge Wildfire, Lord Palmerston, Triomphe de Pecq, Scarlet Gem, Marquis of

Lilac.—Baron Taunton, Juno, Marquis of Bowmont, Criterion, Lilac

Purple and Maroon. - Empress of India, Duke of Wellington, Lord Derby, Midnight, Earl of Pembroke, Erebus, Coronet, George Rawlings, James Backhouse.

Striped and Spotted .- Zebra, Countess of Shelbourne, Mrs. H. Holborn,

Charles Perry, Garibaldi, Harlequin, Startler. Tipped.-Stafford's Gem, Duchess of Kent, Lady Paxton, Magician, Norah

Creina, Pigeon, Fanny Sturt, Annie, Pluto.

A selection of about 200 varieties of Dahlias will be found in the "Garden Oracle" for 1867.

GARDEN GUIDE FOR APRIL.

Kitchen Garden.—The weather has been so bad for some time past, that in very few places has the garden work been carried on as could be wished. It is very important to get all seeds sown as soon as possible; but it is no use to push the work fast if the ground is wet and will not work kindly. The moment the ground is dry enough to allow of it, put on all available force, and get in seeds, potatoes, and whatever else should now be growing. It is very important to be early in sowing winter greens, as they never do well unless they have a long season; this is especially the case with Scotch kale and Brussels sprouts. Peas and beans that are up must have attention; draw the earth to them, and dust with lime or wood ashes. If every part of the kitchen garden were dusted with lime at this time of year it would be immensely beneficial, as the vermin are active, and vegetation is in a condition to suffer more from their attacks than in the height of summer. It should be remembered, too, that lime is a fertilizer, so when it has killed the vermin, it will remain to benefit the plants. We have completely cleaned neglected plots of ground that were foul with vermin by very light dustings of fresh lime about every three weeks, from the end of March to the end of July, and the land has been improved at the same time. We have already given lists of what we consider the best varieties of vegetables to grow this season; but we wish to direct attention especially to Stuart and Mein's (of Kelso, N.B.), Dalmeny Sprouts, Albert Sprouts, and Fearnought Cabbage, as amongst the most hardy and most useful of all winter greens.

Flower Garden.—Now is an admirable time to purchase and plant all kinds of hardy herbaceous plants. Nine-tenths (and more) of all that are worth growing will do well in mellow loam that has been deeply dug and moderately manured. As a rule, open sunny spots are best for them; but many good things will grow in the shade. All flower-beds not yet touched since last year should be dug, and a little manure put in, and left rather rough, to be ready for the bedding. Never rake flower-beds very fine; a certain roughness of surface is essential to the well doing of whatever is planted in them.

Fruit Garden.-There should be but little to do here now except to keep down

weeds and thin the crops of trees that are producing largely.

Greenhouse.—Air must be given freely; but it is well to be cautious when the wind is in the east, as too little air at such times is safer than too much. Quickly shift and repot all plants requiring it, as our season is short, and we want all the growth that can be obtained before it closes. Bedding plants ought now to be cleared out of the house into pits or frames, or even to sheltered borders, where, in case of frost or heavy rain, mats or spare lights may be placed over them.

* * Past issues of the Floral World contain copious calendars of operations; and the Garden Oracle has a complete and concise calendar, adapted for reference.

For these reasons the "Garden Guide" will be on a contracted scale this year.

TO CORRESPONDENTS.

GENERIC DISTINCTIONS BETWEEN CALADIUM AND ALCCASIA. - W. Rose. - In reply to several inquiries which we have had addressed to us upon this subject, we resolve the question in the following manner, which will serve to dissipate all the doubts which can be conceived upon the generic identity of these elegant plants. The species of Caladium and Alocasia do, without doubt, very much resemble each other in their habit and foliage, and it appears at first sight extremely difficult to distinguish one from the other in the absence of their elegant inflorescence, and more especially during the early stages of the growth of the species of the latter genus. However, even when the Caladia and Alocasiæ have not yet developed their spathes (inflorescence), the first may be recognized by their rhizome being always tubercular, and their leaves invariably radical; and the second by their distinct stems, which are more or less raised. So much for their habit; now for their inflorescence. With the Caladium, the spadix flowers along its whole length—the females being situated at the base, the males at the upper part, and the neutrals in With the Alocasia, the floral disposition is precisely similar, but the the centre. spadix is always prolonged in a sterile appendix.

Pampas Grass.—P. B.—We really cannot assign any reason for the non-flowering of your plant, after being several years planted. It is a fact, however, that the plants of pampas vary much in individual qualities, and there are amongst them some that appear to be incapable of producing flowers, just as in strawberries, seed saved from one good variety only will produce staminiferous plants, pistiliferous plants, hermaphrodites, and plants that never flower at all. At all events, we should leave the plant alone; it may, after all, be only delaying the time of its

flowering

AZALEA SUCKERS.—B. G.—The suckers will make nice plants if they are well rooted before they are removed. To make sure of roots, remove the soil so as to explore them nearly to the part of the root they spring from, and surround them with a mixture of chopped moss (very small), peat, and silver sand, equal parts of each. By August next the suckers will be well rooted, and may then be cut off the stump they rise from, and be potted separately.

NAMES OF FERNS. - S. J., Birkenhead. - 1. Cystopteris fragilis; 2. Pteris

tremula; 3. Lastrea dilatata dumetorum.

Heating a Small Plant-House.—Ada of Surrey.—Having tried all the makeshift modes of heating, and found many of them better than nothing, and some few almost free from objection (a grand quality for any stove inside a house), we have at last settled upon Hays's Constant Stove as the very best and cheapest. As for burning many hours, it really seems, when once lighted, as if it would never have done. The season is past now, and all these inventions lose their importance for a time. But before next autumn we shall take an opportunity to say another word upon this subject. For the present we direct inquirers after Hays's Constant Stove to the agent, Mr. Baker. Harp Lane, Tower Street, London, E.C. It is pleasing to hear of your success with tuberoses, but are we to understand that you really had twenty-six to thirty-two blooms from any one bulb?

ACHIMINES.—T. J. H.—In the sixth volume of the Floral World, page 67, this subject was treated at length, and to that we must refer you for a full treatise. It is easy enough to grow these bulbs. Pot them during February, March, and

April, in shallow pans or small pots, in a mixture of equal parts of peat, leaf-mould, and silver sand, and place them in a moist heat of 60° to 70°. It matters not how this heat is obtained, provided it is sweet, and the pots are near the glass. A dung-bed in a common frame will answer as well as a tank in a propagating-house, if the management is good. When they have grown about two inches, transplant them into their flowering-pots. It is the custom to put three plants in an eight-inch pot, but where good growing is the practice, one plant is found to be quite enough, as it can soon be made to fill the pot, and produce a profusion of flowers. The soil for flowering them in should consist of four parts mellow loam, two parts leaf-mould, and one part each of peat and silver sand. A steady heat, the plants kept near the glass, regular syringing, and a little shading on sunny days, and neat stakes as soon as the plants require support, are the several requisites to success, which, with this beautiful plant, is well worth striving for. The plants you have singly in thumbs must be shifted to 48-size as soon as the thumbs are full of roots. The achimines does not require much moisture; at the same time, neglect of watering both at the root and overhead with the syringe will be sure to invite red spider.

CALADIUMS.—T. J. H.—The treatment of these beautiful plants was admirably described by one of the heads of depirtments at Kew in the fourth volume of the Floral World, page 179, and at page 115 of the same volume are some remarks on their uses as bedders—remarks not then intended as prophetic, but which in respect of Battersea Park and the Parisian gardens have proved to be so. Your caladiums will by this time require a shift on, and the soil should be fibrous loam, peat, and leaf-mould, with the addition of sand. The great secret of success is to keep them in a good heat, with plenty of atmospheric moisture and abundance of water at the roots, shading from het sunshine, and shifting on as fast as they fill

their pots with rocts.

DOUBLE WHITE SWEET PEA.—Mrs. K., of Romford.—We have never met with a double white sweet pea, and are in great doubt if such a thing exists. Probably it is the common white everlasting pea you are desirous of obtaining. If so, you may obtain seed from Messrs. Jas. Carter and Co. Almost any nurseryman can supply plants, and in fact it ought to be found in plenty everywhere, for it is a fine thing. If any difficulty in obtaining it in your district, send to Messrs. E.

G. Henderson and Son, Wellington Road, St. John's Wood.

GENETYLLIS AND HEDAROMA. - Rocklodge. - These two genera are closely allied, yet the same treatment will not do for all the species enumerated under them. The points in which alone they differ—that is as to requirements—are as to the temperatures best adapted for them. As a rule the species of Genetyllis are greenhouse shrubs, and as a rule the species of Hedaroma are stove shrubs, but there are exceptions under both heads. The points in which they agree are these, that they require a sound, but gritty loamy soil of a highly nourishing character, as much air as their constitution will bear and the season will allow, abundance of water while growing freely, and to be at all times guarded against excessive damp either in the atmosphere or the soil. They belong to rather dry climates, where, in the growing season, rain falls abundantly. Genetyllis tulipifera is a favourite subject for exhibition, to grow it to a fine size and condition is the work of some years. It requires a light airy greenhouse, and will do well with such treatment as Epacrises and Cape heaths thrive under, except that it must have a stronger soil. As for the getting up of specimens, that is a matter of stopping. training, and tying, and on which books can afford but little aid. G. macrostegia is a fine species, requiring the same treatment. Of the Hedaromas, H. latifolia, H. pinifolia, and H. thymoides are the best. Treat them the same as the Genetyllis, but with more heat. Where there is no stove these may do very well, with coaxing, in a warm greenhouse.

FIFTY SPRING FLOWERS.—G. S. Woodbury.—From the excellent lists by Mr. Robinson, Mr. Williams, The O'Shane, and others that have lately appeared, selections of spring flowers may be easily made. But here is a list of fifty prepared during an inspection of a collection of upwards of 5000 species and varieties of hardy plants at Messrs. E. G. Henderson and Sons' Nursery, St. John's Wood:—Adonis vernalis, Alyssum saxitile compactum, Anemone nemorosa, Arabis albida, Aubrietia deltoidea grandiflora, Aubrietia purpurea, Bellis perennis (various), Caltha palustris flore plono, Cheiranthus alpinus, Cheiranthus cheiri (various), Dondia epipactis, Eranthis hyemalis, Ficaria ranuuculoides, Helleborus niger, Helleborus

olympicus, Hepatica angulosa, Hepatica triloba (in a dozen varieties), Iberis semperflorens, Iberis saxatile, Leucojum vernum, Myosotis montana, Ornithogalum arabicum, Phlox alpinus (many varieties, all lovely), Primula acaulis (this is the common primrose, of which Mr. Webb, of Calcot Gardens, near Reading, has a remarkable collection, comprising double white, double crimson, double yellow and double lilac, etc., etc., all far too beautiful to become popular, so let the eclectic cultivators obtain and keep them), Primula farinosa, Primula cortusoides, Primula clatior (many varieties), Saxifraga oppositifolia, Thalictrum anemonoides, Tussilago alpina, Vinca minor, Viola tricolor, Viola odorata (many varieties), Alyssum utriculatum, Androsacea carnea, Anemone pulsatilla, Arabis caucasica, Asperula odorata, Cardamine amara, Corydalis bulbosa, Draba aizoides, Erinus alpinus, Helleborus atrorubens, Helleborus orientalis formosa, Iris alata, Iris furcata, Myosotis sylvatica, Primula decora, Pulmonaria caucasica, Ranunculus gramineus. In this selection only one bulbous plant, namely, Eranthis hyemalis, is admitted, but G. S. will remember that from the bulbs we may select a good fifty, or a hundred, or even a thousand varieties of hardy spring flowers. The fifty now offered are all quite hardy, and adapted to grow in any common garden soil, requiring no special care, and all may be had at from ninepence to eighteenpence per plant. Moreover, the whole lot may be obtained without difficulty, and may be planted at any time, now as well as any, or they may be obtained in pots, and will need only to be turned out into a nicely-dug border during showery weather, and afterwards to be kept clean from weeds, and from being overhung by trees. Spring flowers, like other flowers, have not been created in fifties or twelves, and when we determine upon an arbitrary number, we may have to omit good things or admit bad ones. Now the cream of the present selection is the first 33; it will be noticed that we begin the alphabet again after Viola odorata, having at that point to find 17 more to make up the number. But those 33 form the foundation of any possible thousand or so distinct sorts, as for example, we have ourselves about twelve varieties of Primula acaulis (common Primrose), but here we make it count for one only, leaving it to the cultivator to select among the varieties. So again of Hepaticas, Phlox alpinus, etc. But here we must quit the subject, for if we yield to its attractions we shall write about nothing else.

POTATOES.—Novice. - The following are first-rate sorts, growing moderately, and, as compared with the generally robust habits of the best kinds, decidedly short in the haulm.—Chinese Early (Stuart and Mein), Fairbairn's Pink, Smith's Early, King of Potatoes, Mona's Pride, Martin's Early Globe, Milky White, Paterson's Victoria. The sorts you inquire about can be obtained of Messrs. Sutton and Sons,

Reading.

PICOTEES, CARNATIONS, ETC .- J. E. F .- It would be best to make up your list for this year from the "Garden Oracle," in which we have grouped the varieties according to merit, to furnish cultivators with an instantaneous key to everything good. It is a mistake to suppose that these plants cannot be well grown in the suburbs of towns. Mr. Kirtland, formerly of Banbury, and now of Stoke Newington, one of the first picotee growers in the country, keeps a good collection, and grows them well, at the Albion Nursery, which is within the four mile radius from Charing Cross, and exactly three miles from St. Paul's Cathedral. Mr. Kirtland's essays on the cultivation of these flowers will be found in the issues for 1866.

CATALOGUES RECEIVED .- Messrs. Sutton and Sons, Reading, "Catalogue of Fern Seeds," and "Amateur's Guide for 1867." Mesers. Carter and Co., High Holborn, "Gardener's Vade Mecum, 1867." This is a remarkable work, full of interesting matter, and displaying everywhere great ability in its preparation. is not given away, but sold at 1s. - Mr. John Fraser, Lea Bridge Road, "Catalogue of Garden and Farm Seeds." - Messrs. Cutbush and Son, Highgate, "Catalogue of Garden and Farm Seeds."—Messrs. Barr and Sugden, King Street, Covent Garden, "Guide to Kitchen Garden," and "Guide to Flower Garden, 1867." —Mr. B. S. Williams, Holloway, "Catalogue of Flower and Vegetable Seeds."—
Messrs. Stuart and Mein, Kelso, N.B., "Catalogue of Seeds, Roots, and Implements."—Mr. James Veitch, King's Road, Chelsea, "Catalogue of Garden and Flower Seeds."—Messrs. E. G. Henderson and Son, St. John's Wood, "Catalogue of Flower, Vegetable, and Agricultural Seeds."-Messrs. Hooper and Co., Covent Garden, "Spring Catalogue, 1867." Contains many things besides seeds, such as gladioli, sub-tropical plants, roses, fruit-trees, etc., etc.

THE FLORAL WORLD

AND

GARDEN GUIDE.

MAY, 1867.

THE HORTUS FENESTRALIS.

INDOW Gardens are usually supposed to consist of flowerpots on window-sills, and though in that simple form they may be very attractive and highly entertaining to their possessors, they are but suggestions of better things, which ingenuity and taste will contrive to super-

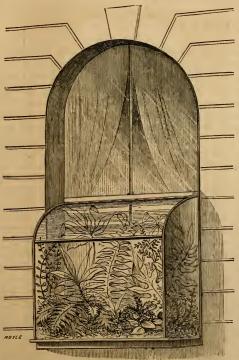
To our country readers, window gardens are matters of small consequence; to town readers—and there are thousands such on the look-out every month for these pages-window gardening is a matter of very great importance. We have adopted the term "Hortus fenestralis," the garden of or belonging to the window, to designate a better kind of window embellishment than either flowerpots or wire-work, and because it seemed that by the use of a new term we might obtain for our remarks on the subject more attention than by the somewhat abused term by which such things have been hitherto known. We first took notice of the new mode of embellishing windows in our journeys towards the western parts of the metropolis, where there were noticeable examples of a most tasteful method of enlivening the interiors of apartments, with but little sacrifice of light, and with the advantage sometimes of a total exclusion of an unseemly prospect, and perhaps administering at the same time a rebuke to inquisitiveness, for it is impossible for passers by to see into apartments, the windows of which are treated in the mode we are now desirous of recommending to the notice of our readers. Possibly many of our readers may have noticed examples of what we call the Hortus fenestralis in Piccadilly and St. James's Street, where there are suites of windows with small projecting glass cases which at all seasons of the year are kept richly furnished.

An essential feature of the Hortus fenestralis, is that it is in the fashion of a closed case fitted to the window, extending to half its height or more; it may indeed be of the same height as the window, and projecting outwards to the full extent of the sill or beyond it. It is a very simple affair, but, like many other simple things, has been but lately thought of; and as it is obviously adapted to render many a dreary look-out agreeable, and enlarge the sphere of horticultural

practice for many garden-loving townsfolk, it is surely entitled to consideration in the light of a new invention. If the reader will now turn to any one of the windows of the apartments occupied during the perusal of this, it will be seen that there is a space both within and without the glass sashes that may be appropriated for the cultivation of plants, as the annexed diagram will illustrate. Let A

represent the inner sill, B the existing glass sashes, and C the outer sill. The whole width of A and C may be appropriated to plants by providing a glass case to fit it; and as most windows consist of two sashes, the lower sash may be removed and its place be taken by the case;

or if that is objectionable, the space C may be appropriated to the case, which may be allowed to project a little beyond the actual width of C



in order to gain a sufficient depth for a good effect. Where the windows are large, there is no objection to a considerable projection, two feet depth may be considered liberal for the Hortus fenestralis; its width and height will be determined by the window. The next business is to fit it. It is well if the base be made of one stout slab of slate, the joints may be iron, and the lower sash of the window may be made to serve as its inner side, and the means of access to it. skilled worker in glass and metals could fit up a case if furnished with such a design as the employer would approve of, and we will only remark that every

part of the workmanship must be good, and there ought to be about the whole affair an elegance of finish consistent with the elegance of its purpose. Messrs. Barr and Sugden, the eminent seedsmen of King Street, Covent Garden, have for a long time past given their attention to the construction of cases of this sort, and we have inspected many that they have built and fitted, and from sketches of many such, we have selected the subjoined as fair examples.

Let us suppose we have a window to deal with. It is perhaps a window of comparatively little use to afford either light or air, and

mayhap has been washed with some preparation to render it nearly opaque. A cheerful display of greenery would be far preferable to a window that looks like a great sheet of dirty paper marked with lines dividing it into squares. We remove the lower sash, or we take out both the sashes, and construct as deep a case as inner and outer sills admit of, and perhaps a little more than the width of the sill on the outside. There must be escape for water from the bottom of the case, and there ought to be six inches depth enclosed by a moulding round the base, in which to place the soil in which the plants are to be grown. Over the bottom should be strewed a layer of broken bricks, of the size of walnuts, and over that a mixture to be made as follows. Take of turfy peat, chopped or torn to the size of walnuts, with all the dust resulting from the operation;

three parts of this peat, with one part silver sand, and one part bricks broken almost to the size of peas, would form a compost in which any plant adapted for the case would grow to perfection. A much greater depth of soil than the six inches allowed for in the construction of the case, can be obtained by constructing a miniature rockery, and so heaping up the soil towards the centre between the stones of which the rockery is formed. The best stone for the purpose is soft sandstone, but common coke will do if there is any difficulty; or picked pieces from the "burrs" used in garden rockeries will do very well, as they soon become mossy, and plants grow well amongst



As a rule, there are no plants to equal ferns for

these cases, and as they will afford more space for them to grow than ordinary fern cases, some species of large size may be introduced. It will be understood, however, that a sunny south window is not the place for ferns; there, indeed, another course must be pursued. As a rule, it will not be possible to heat these window-gardens, though in some instances, no doubt, hot water will be made to circulate around and beneath them, for their protection during cold weather. But when not so aided, the hardier kinds of ferns should alone be planted in

them. There can be little occasion to furnish lists of ferns suitable, as a reference to the "Garden Oracle" for 1866 will supply all needful information. The ferns adapted for cool houses and cool

cases being just such as are required here.

One form of case combines an aquarium with a fernery. Here the lower half or a third of the window space should be blocked with a slate slab, which forms the back of the tank, the glass front being within the room. It has been shown in the "Book of the Aquarium" that it is not generally advisable to allow the light to stream through a tank, and therefore an opaque back is preferable to glass. In furnishing a case of this description, the common English ivy, Hedera helix, in the normal condition in which we usually find it in hedgerows, would be most valuable, as it thrives in closed cases and can be trained up to form a most elegant green tracery. Those beautiful climbing ferns, Lygodium scandens, and Lygodium Japonica, are also well adapted for the same purpose, and must have copper wires fitted to train them to. But here is a golden opportunity for growing the lovely filmy ferns, such as Trichomanes radicans and Hymenophyllum Tunbridgense, with other moisture-loving kinds, such as Asplenium fontanum, and many of the larger varieties of mosses met with in bogs and the neighbourhood of fountains. In the furnishing of the tank the rules given in the "Book of the Aquarium" may be followed strictly. As many of the readers of the FLORAL WORLD do not possess that book, a few practical hints may be useful. First, then, it is advisable to introduce small fishes only, and those should be varieties of carp, the gold carp being the most generally useful. To every two gallons capacity of the tank one small carp may be allowed, and no more. The water should never be changed unless some accident renders it necessary to clean' out the tank, and cleanse it thoroughly. All snails, and in fact all the small animals commonly used as "scavengers," are best dispensed with; they are simply a nuisance. It is also a fallacy to introduce water-plants, but Valisneria spiralis is an exception, as it generally thrives if planted in a bed of pebbles, and left undisturbed. In every part of the rock, and the sides of the aquarium, confervæ should be allowed to grow, but the front glass, through which the view is obtained, must be kept quite clean by the occasional use of a sponge firmly fixed to a stick.

Where sunny windows are fitted with cases, and a gay display of flowers are required, it will be advisable to introduce plants in pots, and plunge them to the rim in cocoa-nut fibre or moss, and change them frequently as they go out of flower, for others in full prime. It must be understood that we love light and air, and cannot advise the use of a Hortus fenestralis where it would be likely to deprive an inhabited apartment of due supplies of those requisites of life. It is, however, always possible to construct them so that the upper sash of the window is left free for ventilation and illumination.

S. H.

SUMMER SALADING.

BY CALVERT CLARKE (LATE OF WIMBLEDON).

MONGST the cares of a well-ordered garden there are but few subjects that demand more attention and fore-thought than to keep up successional supplies of salading during summer. I would impress upon those whose business it may be to supply these subjects, the import-

ance of constant thought and attention, as very frequently a remissness in these apparently small matters leads to observations and conjectures which it is not always pleasant to hear; as, if salads are in fayour with those who have a right to expect them under favourable circumstances, we may be certain that if there is any lack of them the gardener's shortcomings will be measured in the exact proportion to their absence from the table. It must not be inferred from this that it is always possible, under all circumstances, to secure a supply, indeed no kitchen-garden crops are so precarious as these in some light, dry, gravelly soils, where, to get a crisp, fine-hearted lettuce in the month of August is simply impossible if the weather for a few weeks previous has been hot and dry; but, on the other hand, if we are dealing with a loamy or clayey soil, the management must be somewhere at fault if they are conspicuous by their absence from the table. But so much depends upon management, that I have thought it desirable just now to offer a few hints that may be useful at least to amateur readers. Placing first on this short list the LETTUCE, as the most useful amongst them, I may remark that after the second week in May all lettuce seeds should be sown where they are to stand. They should be sown thinly in shallow drills eighteen inches apart, and when well up thin them out to fifteen inches from plant to plant. The ground should be rich, nay, heavily manured, and turned up from the bottom at least eighteen inches deep. This is the best preventive against "bolting," or running to seed before their time, and the best of all methods to secure a crisp, tender-hearted lettuce. It beats all the watering that can be done; and speaking about watering, I would advise the reader never to give them a drop artificially after they are well up, unless he can continue to give them copious supplies every other day. In fact, I don't believe in watering them at all, for it only creates a sort of reaction that has a tendency to make them start for seeding. Give them a thick layer of good fat dung twelve inches below the surface, and it will produce an effect that will startle the senses of those who never tried it. As the summer advances choose the coolest position in the garden in which to grow them-a north bank or under a shady wall are about the best spots that can be had. Sow frequently; that is to say, just a pinch of seed every fortnight until the end of August, choosing more open positions for the last two sowings. As to the sorts, there are no better for summer use than the London Market and the Paris White Cos. The last-named variety I grew in our loamy soil last year to a high state of perfection.

We have next the Turnip Radishes. These are never better than when grown in the heat of summer, but they must be grown in the shade and abundantly watered. Sow the first lot in the shade about the first of June, and continue to do so until the end of August, but rather than to batter the soil down by repeated waterings before the seed is up, I prefer to shade the bed either with old mats or a thatched hurdle, removing the shading as soon as the seeds are up. If birds are troublesome, put a net over the bed.

BEETROOT ought, for a few early roots, to be sown under glass, be nursed on in pots, and turned out in the ground in May. If these are liberally dealt with by repeated applications of manurewater, and are otherwise standing in rich soil, they will produce nice roots by July. The main crop of beets should be sown late in April or early in May, the ground should be deeply dug but not manured

for them.

The first sowing of Endive may now be made. Sow it in the open quarters where it is to stand; thin out quickly, as no plant suffers more from a crowded state in the seed bed than this. Large heads early in the season should not be aimed at; tie them up when

quite dry, and make additional sowings every three weeks.

If Celery is wanted, treat it the same as recommended for beetroot, and keep it well fed from the sewage pump, always using the precaution of adding a little more dry earth the next morning after watering. This prevents evaporation, and keeps the roots much longer moist. The main crop of celery I have nothing to say about, as the cultivation has been frequently treated of.

MUSTARD and CRESS may be sown in the shade every week, and during the season make about three sowings of the CORN SALAD.

The green leaves of this are very useful for mixed salads.

The above are all essential subjects to a good salad. There are a few other smaller knickknacks sometimes grown for special taste, but I need not name them here, as they are not sufficiently well known to bring them into general use, and they can be very well spared.

THE AUCUBA JAPONICA.

HE old "spotted laurel" of the gardens, always a noble evergreen, but sometimes despised, because "common," has of late years acquired immense importance as a decorative plant, and, irrespective of its ornamental value, has become peculiarly interesting to horticul-

turists, in consequence of the possibility of rendering it fertile as a berry-bearing shrub, in which condition it naturally leaves the holly far behind, by the splendour and abundance of its large scarlet berries. A short monograph on our old friend may now be of some value to our readers, though we must premise that every stage of progress in the exaltation of the aucuba to its present dignified

position as one of the best of exhibition plants has been duly noted in the Floral World, and reference to past issues will show that not a single fact respecting it has escaped our chronicling pen—a good test, we will venture to say, of the comprehensiveness of this humble and by no means voluminous work. We have not time to hunt up references to the subject, but we find, at page 79 of the seventh volume, a record of the first exhibition, by Mr. Standish, of the first English-grown specimen bearing ripe berries; and in the issue for April, 1865, will be found a resumé of the facts which contribute so directly to render the aucuba one of the most interesting plants in cultivation. If some few of these particulars are now repeated, it is not for the sake of repetition, but because it is unavoidable; and we are anxious that all the readers of the Floral World should understand the aucuba, and derive the fullest advan-

tage from its capabilities.

The Aucuba Japonica belongs to the natural order Cornacea, or Cornels, and is therefore allied to the common dogwood of our English wastes; but the relationship is rather remote, for it appears that the pollen of the dogwood will not fertilize the aucuba. plant is in no way related to any of the laurels, though it is sometimes called "spotted laurel," on account of its large, leathery, laurel-like leaves; but it is more nearly related to the ash and the alaternus than to any laurel. The introduction of this shrub to England took place in 1783, and for many years thereafter it was grown in the stove; the rule of subjecting all exotic plants to a high temperature being then in full force. In the course of time it was found capable of bearing a greenhouse temperature, and to be healthier there than in the stove. In the next stage of observation it was found hardy enough to survive the winter out-of-doors, and at last it became a common garden shrub, thriving far better when exposed to all weathers than when coddled under glass, and treated as a tender subject. To trace the course of its popularity is quite unnecessary, for our readers are all aware that for the last thirty years it has been planted more extensively than any other hardy shrub, and especially in the neighbourhood of towns, one of its particularly good qualities being that it bears smoke well.

On some few occasions the common aucubas have borne what appeared to be red berries, but which proved to be only the outer envelopes of apocryphal berries, or, we may say, abortive berries, destitute of pulp and of a vital germ. But these abortive berries reminded cultivators thatin its native country this fine tree bears berries abundantly, and that it would be desirable to render it fruitful here; for we can enjoy the beauty of red berries in the winter as fully as the Japanese. The great interest of the subject turns upon this point. Some plants bear flowers that contain both male and female organs—that is to say, both pistils and stamens; as for example, the apple, pear, plum, etc. Others bear flowers of two kinds; in one kind we find the male organs, and in the other the female; but both kinds of flowers are on the same plants. Examples of this occur in the cucumber and the maize. In the cucumber the male flower contains one prominent stamen, and the female flower one

pistil, and at the base of the flower a rudimentary fruit. In the maize or Indian corn, the male flowers constitute the elegant feathery spun-glass-like plume with which the plant is crowned; and the female flowers are found in the axils of the leaves, lower down, where ultimately the "cobs" of corn are formed. Linnaus classes plants of this last kind as Monæcia, or "one-housed." A third kind of plant has the male flowers on one plant, and the female flowers on another. Examples of this occur in the Pampas grass, the male of which is the most robust in habit, and produces chaffy plumes of flowers, in which stamens are found; the female being more light and graceful, and consisting of pistils only, and rudimentary ovules, which, if the pistils are fertilized by pollen from the male, ultimately become grains of true corn, or "Pampas grass-seed." Plants of this kind Linnæus classes under the term Diæcia, or "two-housed." It is to this last class in the Linnean arrangement that the aucuba belongs; the male flowers are ordinarily produced on separate plants from the females, as is the case with the English yew and the com-

The first importation of the aucuba, in 1783, consisted of female plants only. For many years after this form of the plant had been acquired, Japan was closed against European commerce, and to obtain the male plant was impossible. Meantime, the gardeners of Europe propagated from the original stock; and the gardens of the world, we might almost say—at all events, the gardens of Europe and America—have been stocked almost to repletion with females, while the male remained as yet unknown. But a few years since, Japan was again opened to the ships, the merchants, and the travellers of Europe; and amongst the many enterprising men who seized the opportunity for botanical exploration was the veteran Robert Fortune, who had already enriched our gardens with many precious plants from China and Shanghae. To Fortune we are indebted for the introduction of the male aucuba, which was first grown by Mr. Standish, of Ascot, and by him in due time distributed at a price which made a good return for the costs incurred in obtaining it, but none too much, considering its intrinsic value, and the important consequences to which its diffusion will be certain to lead.

Simultaneously, or nearly so, with Mr. Fortune's acquisition of the male form of Aucuba Japonica, an Indian species, A. Himalaica, was introduced. This appears to be quite hardy, but is at present scarce, and has not, so far as we are aware, been fully tested as to its ability to endure the rigours of this climate. But these were not all the acquisitions of the kind of which we became apprised about the year 1860. An extensive series of varieties of A. Japonica were ushered into notice, and amongst them the green-leaved, or normal form of our old established "spotted laurel," that is to say, the same plant in the uniform deep green hue of its original condition; or, as we may say, the common aucuba before it became variegated. This was at first called Aucuba Japonica famina vera, that is, the true female aucuba; but the name by which it is now known is A. J. f. viridis, the "green-leaved" female aucuba. The several varieties

will be enumerated and described presently. Let us now glance at the structural peculiarities of the flowers.

The male flower, Fig. 1, consists of four red sepals or petals (it cannot matter what they are called), and four stamens on filaments

of equal length. The female flower, Fig. 2, has four petaline divisions of the same kind as the male, but in place of four stamens it has one pistil, the stigma of which is cylindrical, and the pollen shed by the stamens of the male flower is applied, at the proper time and in the proper manner, to the stigmas of the female flowers. The result is, on the female plants, an abundant production of ovate berries nearly as large as rose-hips and of a deep red colour, as represented in Fig. 4. These berries consist of single seeds enveloped in a scarlet rind. When cut in half the embryo plant is

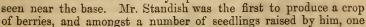




Fig. 2.

has produced flowers in which there are both male and female organs; that is to say, this particular plant is apparently hermaphrodite. It has not, however, so far as we are aware, been fertilized by its own pollen, and therefore we cannot as yet describe it as a true hermaphrodite. Nevertheless, we may hope for hermaphrodites which will be self-fertilizing, as are the flowers of the wild rose, and ten thousand other subjects that produce both male and female

Fig. 1.

organs in the same flower, for in the male aucuba the undeveloped germs of the stigma are present, and some accident may result in the development of both organs in the same flower. A flower from Mr. Standish's presumed hermaphrodite is represented in Fig. 3.

To cultivate the aucuba is easy enough. It will grow in almost

any soil and situation. But to grow it as a conservatory plant it must have the care that is usually bestowed on nearly hardy subjects. A free, rather light, but good soil is requisite, consisting in great part of loam with thoroughly decayed manure and leaf-mould added. Many of the new varieties are far superior in beauty of leafage to the common form of the plant with which we are familiar in gardens, and



Fig. 3.

therefore are well worth growing in pots until they attain so large a size as not to be conveniently dealt with in that way, and may be planted out to make garden trees. As the new varieties are expensive, a word on their propagation may be of service. The safest method is to take cuttings of the young shoots in the month of July and put in shallow pans and cover them with bell-glasses. Having made an early speculation in all the new varieties, paying at the rate of five to seven shillings per leaf for some of them (as for example, £1 for a plant with only three or four leaves), we felt the importance



quickly increasing them, and adopted method at once simple, and which proved eminently successful. Shallow pans were filled with a mixture consisting of about equal proportions of loam, peat, sharp sand, and potsherds broken to the size of peas. Cuttings, an inch and a half to two inches long, taken from the young wood before it was fully hardened, and dibbled close together in this mixture and covered with bell-glasses, rooted quickly, and the bell - glasses were moved, and the young plants were wintered with ordinary greenhouse The peculiar treatment. mixture they were in prevented damping off in winter (the mixture was adopted for that purpose, for the cuttings were too costly to be put to any risk), and in April they were potted separately and kept shut rather close in frames for a fortnight afterwards, and were then put out of doors, the pots plunged to their rims in cocoa-nut fibre, and after that they pretty well took care of themselves and grewfreely.

Nearly all the plants of the new varieties sent out by the trade have been grafted. This is a very simple method of multiplying them, and the *modus operandi* is as follows:—Stocks are obtained by pegging down the common aucubas in the month of May. Every layer is tongued and soon makes roots. In September the rooted

shoots are separated and potted in small pots and are set aside in cold frames for a month or two. They are then transferred to a warm house, and the varieties to be grafted are put in the same house with them. They begin to grow almost immediately, and as soon as there are signs of movement their heads are cut off, and the scarcely bursting shoots of the varieties are grafted on them by side or cleft grafting; usually the first, for there is not enough wood for cleft grafting. As soon as the grafts are tied on, they are placed in a steady and quite moist but gentle heat, and stock and graft grow together almost immediately and with considerable speed. We find it very difficult to keep the plants clean so long as they are subjected to artificial heat; indeed, we have had our stock thoroughly foul with green-fly on several occasions when pushing the growth. We can only advise fumigation the moment the fly appears, and the smart use of the syringe over the leaves at all times that the state of the plants and weather will allow. When they are in flower the syringe must not be used. A golden rule to get rid of all vermin in spring, is to put them out of doors as soon as it is safe to do so; this makes an end of vermin completely. Ours, that had been wintered under glass, were put out on the 12th of April, and will remain

out till October next.

Fertilization of the female flowers is such a simple process that we hope all our readers will include it in the round of their garden recreations. It is best if male and female plants are in flower at the same time and in the same house. In this case the pollen can be removed from the stamens of the male flowers daily (mid-day is the best time), with a dry and soft camel's-hair pencil, and at once applied to the female flowers. To pass the brush lightly over the stamens first, and then lightly over the female flowers, is all sufficient. If the male flowers first, which it is apt to do, having been so hard forced in the nurseries for increase of stock, the pollen should be brushed off daily into a tin box (or into a box of any kind lined with tin-foil), and when the flowers of the female are expanded, it must be transferred to them from the box by means of a camel's-hair pencil. Some precautions must be taken from the first to prevent a waste of pollen, for whatever falls on the mould inside the pot may be considered lost for ever. Mr. Crute, who has exhibited the finest specimen berried aucuba, covers the soil of the pot containing the male plant with tin-foil just before the flowers open, and when removing the pollen from the flowers, takes care also to sweep up any that may have fallen on the tin-foil. I lay some small squares of glass over the soil, which answers pretty well, but Mr. Crute's method is the most neat and complete, and is, therefore, recommended. The pollen may be kept for a great length of time if cool and dry.

The berries of the aucuba swell slowly, and do not ripen till nearly mid-winter, unless the plants are constantly kept under glass. When ripened, the appearance of the plant, if the berries are plentiful, is truly magnificent, but to display the berries well it is advisable to remove a few of the uppermost leaves. In the month of March is the best time to sow the berries. They require no preparation, but may be sown as they are, in any light, good soil, one inch deep, and will, in the course of about two months, germinate. As the seeds are worth at the present time a shilling each, it is advisable to sow them in pots, and place the pots in a frame or pit, that they may be exposed to fewer risks than if sown in the open ground. We will now enumerate the varieties of A. Japonica.

MALE AUCUBAS.

Aucuba Japonica mascula viridis.—This is the green-leaved form of the male; a neat and handsome shrub, with dark-green glossy leaves.

A. J. m. angustata.—An elegant narrow-leaved variety; quite

green.

A. J. m. bicolor.—Bold and handsome, the centre of the leaf striped with yellow; very showy.

A. J. m. varia.—Leaves marked with fine yellow blotch.

A. J. m. maculata.—Richly blotched with yellow and cream colour.

FEMALE AUCUBAS.

Aucubas Japonica famina viridis.—The green-leaved form; quite a handsome shrub, irrespective altogether of its berry-bearing properties.

A. J. f. elegans.—Fine broad leaves, deeply serrated, with broad

centre of yellow and green margin.

A. J. f. latifolia.—Very broad dark-green leaf; a strikingly hand-some shrub.

A. J. f. limbata.—The margins of the leaves are yellow, and the disk exhibits two shades of green.

A. J. f. longifolia. —A distinct and elegant variety, the leaves

green, longer, and narrower than usual.

A. J. f. longifolia variegata.—A moderately-well coloured form of the last-named; the variegation consists in lines and clouds of sulphur and amber.

A. J. f. macrophylla.—One of the most remarkable of all; the

leaves extra broad, and quite a light green.

A. J. f. elegantissima.—Leaves extra large, with one large spot of clear yellow, and the rest of the leaf green dappled with yellow; one of the handsomest of all.

A. J. f. variegata aurea.—Superb stripe of gold yellow up the

centre of the leaf; an excellent variety.

It is but right to add, that though Mr. Fortune's female plant was distributed by Mr. Standish, Mr. Bull, of King's Road, Chelsea, has the honour of introducing by far the greater portion of the above, both male and female, the varieties having been obtained from Japan by Dr. Von. Siebold. The last in the list is a true English sport, which occurred in the nursery of Messrs. Cutbush and Son, of Highgate, who have propagated it, and offer plants to all who like to pay for them. Amongst the many males, it appears that the one called maculata is the most prolific of pollen.

CULTIVATION OF THE DAHLIA.

BY MR. J. COURCHA, VICTORIA NURSERY, VICTORIA PARK.



T is now thirty-seven years ago since I first began to cultivate the Dahlia. The first I ever grew was a single one, and I have continued cultivating them ever since, and so am pretty intimately acquainted with the various stages of progress up to the present time. I shall offer

a very few remarks upon the following heads:-Propagating, soil, planting, training, growing, growing hard eyes, defying earwigs or any other vermin, cutting down, putting away, and the properties of the flower.

PROPAGATING.—In propagating the dahlia, we always put the tubers on in the second or third week in December. This may be considered by some very early, but it is none too early for those who, like myself, have to raise a large stock. We always cut them under the joint, after they have sprouted, and then they will keep on breaking out, and so you cut them again as fast as they sprout. With such things as fuchsias and geraniums, you may cut above the joint, or at the internode; but with dahlias it is different, you must with these cut under the joint. After you have taken off all the cuttings you require, break off the remaining shoots, and then plant the tuber, when it will produce one good plant. Some persons prefer pot roots to cuttings; and this may be said in their favour, that when put into the ground they grow much faster than cuttings. I don't pretend to tell you the reason of this, but can assure you that such is the case; for although the pot plants will flag when first put in the ground, yet after a while they recover, and then grow faster and bloom earlier than plants raised from cuttings; so also the old bulbs, if planted after they are cut, will produce good plants, and bloom earlier than the cuttings.

Soil.—One thing is certain with respect to the soil for dahlias, and that is, that they are very fond of a great deal of manure. The compost which I used many years ago was a spadeful of mould, with half a bushel of dung; mix them well together, and then tread it down to make it rather hard, for unless you do this the dung will make it too spongy. This compost I used with great success, and showed as fine blooms as most persons, which is proved by the number of prizes received at different times; it is a similar compost

to this that I use at the present day.

PLANTING.—The first thing to do in the planting of dahlias is to drive a stake in, so that they may be tied up at once, which will remove all fear of their being broken by the wind, or other causes. If this is attended to, there is nothing else of importance to think

about in planting them.

TRAINING.—The old-fashioned method was to train dahlias like poplar trees—that is, to take off all the shoots to the height of three or four feet, and thus expose the poor thing's legs to view, and compel them to run up to a great height. I remember growing one once for exhibition, and I had to get a table and a man six feet high to put a shade over it; and whenever the wind blew hard I would go and hold it, to prevent it knocking against the shade and getting injured. Now they are grown two or three feet high, so that a person can stand at any point of his garden and view his whole collection comfortably. My opinion is that any tall-growing plant may be grown dwarf, and flowered with good effect. The first I ever saw was by Mr. Russell, who grew for Mr. Proctor. He used to grow from four arms; he gave them a large quantity of dung, and the plants grew strong, and produced fine blooms. To grow dwarf, put your young plants into the ground, and let them grow till you can bend them over to the ground again, when peg them down, which

will allow the bottom shoots to grow up.

WATERING .- At one time the watering of the dahlia was considered of very great importance, and a few years ago I used to devote four hours every other day to watering my plants. But I find now that they will do just as well without, and so of course never give them any; and I will tell you how I found it out. man who used to assist me in the operation left me suddenly, when the plants never got any water, and they did just as well as in previous years. Now I certainly think that they should be made to fetch their own water. Of course when we have them under cover we must attend to them and water them, and they often grow so vigorously that I have known them to lift the glass. But out of doors all you have got to do is to plant them deep enough and they will get their own. At one time it was the practice to water them by pouring the water all down at the stem; but this is where they want it least of all. Watering at the stem makes them weak, and makes them grow tall when they are much better dwarf. All you have to do is, when planting, if the ground is dry, give them a thorough good soaking, and then leave them to take care of themselves.

Growing Hard Eyes.—Here is a plan for growing hard-eyed flowers. Take good strong plants, and let them be got in early. Then let them grow wild so as to weaken the plant a bit, and then cut away; but if you cut very much you will only get a very few blooms. In the beginning of October the plants will have made so many flowers that the hard eyes will then come. With some persons, however, it makes no difference whether the flowers are hard-eyed or soft-eyed. Whenever I go to a show I like to get there early, so as to have plenty of time to make all arrangements that are necessary, and not go just as it is time for the censors to commence work, and then to be hurried away before I have had time to place my flowers properly. And by going early I have often seen other things as well which are well worth finding out. One day at the Crystal Palace I saw a great gun among the growers up in a corner surrounded by his blooms. He had a stick in his hand, and with it he was busily picking out something from the centre of a flower, and putting it into his mouth. Well, he continued picking away till he had picked out all the centre of the flower, and then with another instrument he very carefully turned the other florets over towards the centre, so as to hide the place; and this is the way the public are deceived.

But they do not quite pick out all the middle of the flower, but leave a little bit just in the centre, so that if the judges happen to turn the florets back they may see that it has a proper centre, whereas if they turned them further back they would see a great bare place. Now this kind of thing I maintain is both unfair and unjust. But many of the seedlings palmed off upon the public are grown in this way. If seedlings were grown and shown fairly, not half those which are made so much fuss about would be regarded at all with favour by

the public.

CROCKS.—When striking cuttings, I always do entirely without crocks, which makes them very much handier in turning out. I do not say that my system is so much superior to the crock method, but it is certainly cleaner and more tidy. I take an ordinary thumb-pot and place it upside-down in the pot in which the cuttings are to be placed, then fill up with compost and put in the cuttings. Place the pots in a little heat, and you find them grow faster than when crocks are used. The reason I suppose to be this, that the hole of the large pot being quite free, the thumb-pot inside

gets full of warm air, and so brings them on faster.

VERMIN.—Now then for the plan for defying earwigs, caterpillars, and all other vermin, from injuring your flowers. As soon as the buds begin to expand, get a muslin bag about six inches each way; draw it round the stalk just underneath the bud, not too tight. but just so that it will move up and down easily, and then place the shade over it. As the bloom opens, the bag will give to it, so that when the flower is fully blown you would be surprised how beautifully clean it is, and entirely free from anything which can blemish After the bag is put over the bud, you may leave it in perfect security that no caterpillar will come and gnaw out the heart of your pet, and thus in one night upset all the labour of the season. I use these bags very extensively, often having as many as 200 of them on fifty plants, which gives them a very strange appearance. training or growing for bloom, take one off one side and one off the other alternately. It is not by any means advisable to grow very large flowers, as the florets come very much better on the smaller ones. Some persons leave only one bloom on the end of the stem, which comes enormously large, but does not correspond with the others, nor yet come so good in form.

Shading.—Placing a shade close over the flower is also very bad, as it frequently makes them quite a different colour from what they ought to be, by depriving them of light. Place your shade as far from the top of your flower as possible, so that you protect them from sunshine and rain; and you will find that the hardier you make

your flowers the better they will be.

Taking up.—After they have done blooming, cut them down; then take up the tubers, and put them in a nice warm dry place. I generally put mine by the side of a flue, where they get properly dried. About three weeks' rest is sufficient, when they may be got to work again. As soon as they are dry, plant them again, and don't give them much rest, as they do better without it.

PROPERTIES.—In laying the flower, the florets should be arranged

like the slating of a house. The slates on a roof are laid so that each one covers the edges of the two immediately beneath it, and that is exactly how the florets of a dahlia should be. You should also not be able to see the under side of them, even if the bloom is held sideways. In a reflexed flower, the florets are turned back, so that the centre is thrown up. Many are cupped so much that it leaves quite a hole in the centre; but what we want is a floret almost straight, and just sufficiently cupped to form a good flower; and then, even if held sideways, you cannot see the under side of the florets. A flower should be two-thirds of a ball, and every floret should cover the edges of the two underneath. The size of the flower should be four inches, and never more than six. I think four inches quite large enough, as many which run to six inches in diameter are badly formed and coarse in texture.

CULTIVATION OF THE PANSY.

BY AN EXHIBITING AMATEUR.

AVING been a grower many years, and a successful exhibitor, I think that without presumption I may give some of the results of my experience for the benefit of those who may require it. Before going further, I would have the novice in the culture of the pansy to understand

that a person may be a very successful grower, and yet be very unsuccessful as a competitor. The plants may be ever so well grown, but it requires one who thoroughly understands the properties of the flower to make up a stand for competition; there is also a great knack in laying down a bloom; it must be kept in mind that they stand very little handling, and that only of the most gentle description. The beginner should therefore direct his attention to both the

culture and the markings or properties of the flower.

To grow pansies in the open border, a piece of ground should be selected well sheltered from high winds, but at the same time quite open to the sun and air. If a crop of potatoes has just been taken off, so much the better; if the ground has been manured for the previous crop, it will require nothing but digging; if not, a little rotted turf or very old stable manure should be added. The pansies should be planted in rows, about one foot apart, and from eight to ten inches apart in the rows. The end of September or beginning of October is the proper time for planting to bloom in May or June; for the autumn exhibitions, they will require to be planted in April or May, or even later, according to the climate or exposure. Just before beginning to bloom, a top-dressing of leaf-mould or very old manure will be beneficial; liquid manure, especially if the least too strong, is apt to cause the colours to run, and the blooms to come flabby and rough-edged.

Cuttings should be struck whenever they can be got. Side-

shoots strike freely all the summer months, in a border on the north side of a wall or hedge, using plenty of sharp sand. When not required for exhibition, the plants should be cut over, and in a few weeks there will be an abundance of offsets, some of which will be nicely rooted plants; those that are not rooted will strike much faster than cuttings taken from the branches, and form much more

healthy plants.

The flower-buds ought to be taken off as fast as they appear, until within about three weeks before the day of exhibition. For a few days before the blooms are required they should be shaded with thin cotton or other light fabric, being careful not to place the shading too near the plants, or the colours will be bleached; indeed, they should be shaded as little as possible, and then only from bright sunshine or rain. Keep a sharp look-out for green-fly. It is perhaps safer, however, to use precautionary measures: make a strong infusion of tobacco, and with a piece of rag or sponge run a little of it into the heart of each shoot. Repeat frequently, or until the

vermin disappear.

For exhibition purposes it is advisable to grow a number of plants in pots; they can be much more easily protected from weather and vermin, and generally speaking the blooms are finer in quality. There are some varieties it is of no use attempting to grow in pots, as their colours almost invariably run. The plants should be put into thumb-pots about the beginning of October, and plunged in sand in a cold frame; the sashes should not be used unless during severe weather. Take the first opportunity after the middle of January of shifting to eight or nine-inch pots. Soil, decayed turf and leaf-mould in equal parts, with a little sand; it ought to be mixed in the beginning of winter, and thrown into a sharp ridge, in order that it may get all the frost going. Plunge the pots about half their depth in a frame amongst sand or sifted coal-ashes. Never put on the sashes, except during hard frost or drenching rains, until the last week before the exhibition, and not even then unless the weather is wet and variable; the sashes not to be nearer to the plants than two feet, and allowing a free circulation of air all round the sides.

Pansies in beds are easily protected from snails by putting pieces of board on edge all round the beds, and occasionally give the boards a touch along the outside with coal-tar; the frames can be protected in the same way. There is no way of preventing the ravages of the wire-worm, or julus, but by hand-picking; it causes considerable trouble, but it is the only way to get rid of them.

SOME USES OF THE IVY.

BY KARL PROSPER.

HAVE not seen, during my residence in England, that one of the most beauteous of evergreen shrubs is turned to such account as might be in the decoration of the garden. I was first reminded of the extreme value of the ivy as a garden plant, by inspecting one of your London gardens, the one called Islington Green, near to where the Agricultural Hall is situate, and in which the compartments are all marked out with broad and rich edgings of the Hedera canariensis. I said within myself, whose planted this garden knew how to manage in a place so much exposed to smoke and dust; but when I learned that Mr. Hibberd had superintended the planting, my surprise ceased, and I said this is what we should expect, that one who writes well should work well, though it is not a rule for such to be. The beauty of the ivy there is peculiar to the spot. There are two most ugly-shaped plots of land, they are irregular wedge-shaped and all on one side, and to give them any pleasing character, great ingenuity was required. Well, their ugliness is softened down by the marking out of great compartments in curves, and all are edged with ivy, so that whichever way we look we see fine curves of dark green vegetation set off upon the light green of the grass—this directs our cogitations to the uses of the ivies in gardens. Oh dear, what expense and trouble some people incur to make edgings to their flower-beds, but if they would plant the lovely silver-margined ivy about two feet apart all round their beds, they would have bright and beauteous edgings that would be scarcely less attractive in winter than in summer, and with every year would be becoming better. Now, how excellent would be this plan of planting in peaty, chalky, or sandy soils, where the variegation of such superb kinds as Cullisii or the new Japanese variegated ivy would come out true and strong. beauteous variety of Hedera canariensis, called aurea maculata, which is richly variegated, a kind of greyish yellow, would make a most grand edging to a broad ribbon border, and for any terrace or geometric work where twelve inches breadth could be allowed it; though if only six inches wide it would be characteristic and effective. Then there are materials among the ivies for green edgings of many kinds. In places where box will not grow, fine edgings of ivies may be made by planting the common Hedera helix or Hedera canariensis one yard apart, and then trimming and clipping the growth as required. A fine edging may be made with the Taurican ivy, called Hedera helix Taurica, which is of small growth, with neat dark green glossy leaves. To train ivies to edging is one of the easiest things in the world, and as it will grow in any soil, they are plants adapted for all kinds of garden. To name the best kinds seems to be needless, for all are good, but at some few nurseries there is a great variety to be met with, and my friend Mr. Hibberd, who has an extensive collection, will always tell us of the best kinds for any particular purpose. I have seen a

great bed of rhododendrons surrounded with roses, and the whole enclosed in a broad ring of ivy, looking quite grand in a garden.

Another good use for the ivy is to clothe banks that are shaded. Here we may have great sheets of such a kind as the variegated Hedera canariensis, and the poorer the soil for it the better the colour of the variegation. So again, many barren places under trees in gardens could be made beautiful by clothing them with ivy; the merest scraps inserted any time during summer would take root and in due time spread into rich masses of dark green vegetation.

But the most interesting of all the uses of the ivies is to furnish the garden in winter. For this purpose they are grown in pots, and are placed where required when the proper time comes. One of our best friends has brought this system of using them to perfection, and it is impossible to see the plants and not feel that a quite new

epoch in horticulture is inaugurated therein.

All the small-leaved ivies are well adapted for growing in close glass cases. They bear the confinement admirably, and are most easy to train if the mechanical means of training are provided, such as wires, etc. I do not hesitate to say that the common Hedera helix (that is, the wild ivy of the English woods) is one of the most elegant plants ever seen when grown in closed cases, and is well adapted to increase the interest of a collection of ferns. In some town localities double windows are formed to exclude dust and subdue the summer heat. Sometimes ferns are planted in those windows, and they perish. Well, if such be the case, the owner need only plant common wild ivy, and very soon the window will become a rich green screen, the delight of all who behold it.

It is well known that ivy is one of the best of plants for walls, but it is not every ivy-clad wall that is a credit to its owner. Certainly, to keep a wall well covered is worthy of the little care and expense required. The climbing varieties of variegated ivies make superb coverings for walls, especially the very distinct and constant *Hedera canariensis maculata*. Amateurs would find much amusement in collecting the variegated and other ivies, and planting them to climb up walls, and rock-work, and about trellises, arbours, and stumps of

trees.

IMPATIENS JERDONIÆ.



HIS splendid plant is usually described as an annual, but it is a perennial, and may be grown for any number of years. I will give you an account of one that was in my care. The plant was bought at a sale in the autumn of 1860, and was then two years old, and

nearly a foot in diameter; its lower branches rested on the soil, and were rooted in the same manner as layers; it was kept dry all winter, only watered when it showed signs of shrinking from being kept dry; as soon as it began to grow in spring, 1861, it was top-dressed with leaf-mould, and placed gradually at the warmest end of

the stove, and syringed twice a day and watered copiously, and with tepid liquid manure twice a week after being fairly started. It was exhibited in collections of stove and greenhouse plants at Bath, Bristol, and Cheltenham, a perfect mass of bloom. I stripped it of all expanded flowers after each show; as soon as it became full of flower again, it was taken from the stove to an intermediate house, thence to the greenhouse, free from draught; and a few days before exhibiting I placed it out of doors in full daylight for a few hours each day; by this means the colours were much more brilliant and intensified; it was gradually dried off, and survived the winters of 1860-1-2. In the spring of 1862 I gave it a large shift, in equal parts of peat, leaf-mould, and silver sand, with a good depth of crocks for drainage. This plant of all others is the most brittle; its branches bearing over the brim of the pot, I found it impossible to knock it out in the ordinary way; therefore I proceeded to shift it as follows: having placed two bricks a few inches apart, the pot was placed on them, and cracked all round with a hammer and removed piecemeal; then two strong pieces of bass were placed between the bricks under the ball, and it was lifted by the pieces of bass and lowered into its place (in the same manner as a coffin is lowered). When I left it in June, 1862, it was eighteen inches in diameter. The best way to make a good plant in a short time is as follows:—When the old plant begins to push, take off pieces about three inches long and lay them on the top of a pan or pot filled with a sandy mixture; they must be laid on the top and gently pressed, as vine eyes are done; they will soon root all along the under surface, and throw up many shoots on the upper; by the autumn they are nice stocky plants. The following spring they should be shifted without separating, and will make good plants for show by autumn. I have always found young plants to bear the largest flowers. Nothing can be more effective than this plant is for exhibition; its quaint-looking flowers, of rich vermilion, green and yellow, contrasted with its dark stems, and leaves of a purplishgreen, make it one of the very best for a conspicuous place in the front rank, where it is sure to be mobbed. Its culture is most simple; but if watered much during winter, that is almost certain death to it. In June, 1861, I planted out two plants in the open AN EX-EXHIBITOR. ground; they flowered profusely.

CULTIVATION OF THE MUSHROOM.

HE bed should be made with fresh warm stable-dung, mixed with at least one-fourth of vegetable mould from decayed tree leaves, or with the same quantity of wellrotted cow-dung. Then throw it up into a heap, well mixing it in the process, and let it lay for a week or a fortnight to let the burning steam and heat pass off, so that the

whole may become mellow, and of an equal temperature, in which state it is in readiness for making the bed.

In making the bed, either on the shelves or floor of the mush-room-house, take some long litter from the dung-heap, and lay at the bottom; then let the prepared dung be put on in layers to the depth of two feet, being well beaten down as the process goes on. When the bed is made, it is proper to have two or more trying sticks thrust down in different parts to draw up occasionally, in order to ascertain the heat. After the vehement heat has subsided, and the bed is lowered to a very moderate or mild heat, then, and not before, put in the spawn, previously breaking the large lumps into moderately small pieces, and planting it into the dung at one foot apart. Then take the earth of previously made exhausted beds, and scatter it all over the surface; it will answer two purposes. When the spawn begins to run, cover the bed with strong rich earth mixed with a little cow-dung, and, after it is finally earthed over, let the surface be smoothed, and well beaten with the back of

a spade; two inches of earth is quite sufficient.

In making mushroom beds out of doors, take a sufficient quantity of dung prepared as already directed, and with it make the bed in the form of a ridge, four or five feet wide at bottom, and three or four feet high, gradually narrowed to the top. The process of making the bed is the same as that described in the mushroomhouse. It should be made in a dry sheltered situation, and on level ground, in preference to making the lower part in a trench, in order to have the opportunity of spawning it quite to the bottom, and also that water may not settle in that part to check the heat; mark out the proper width and intended length, and then commencing at the bottom part by a layer of prepared dung, as before observed. Begin at one end, and work up the sides equally in a gradually sloping manner, and forming the ends nearly in the same proportion. Observe to put in the spawn as before directed, for the heat should be only sufficient to set the spawn in vegetative motion, so as to extend its fibres into the dung and earth; and this degree of heat should continue for some considerable time in a moderate growing manner, to promote and forward the knotting of the mushrooms. When the bed is spawned, and earthed over, it may be directly covered with a good thickness of dry straw, and an external coating of mats, pegged down at each side of the bed.

As the mushroom is subject to the attacks of insects during the summer months, it is necessary here to add that the only means of keeping away the enemy is by putting a layer of coal ashes beneath the bed, and mixing a little soot with the covering of earth. In watering, make holes one foot apart in the bed, and fill each hole as

the bed becomes dry.

To keep up a succession throughout the season, take this as a rule:—As soon as mushrooms appear on one bed, make the preparations for another. The temperature of the mushroom-house may be kept from 40' to 60'. In a month or six weeks after spawning, if the bed works kindly, it will produce mushrooms; and, if kept in good order, it will continue in bearing for several months.

In examining the beds out of doors, or when gathering the produce, turn off the straw covering very carefully; and, as the

advancing mushrooms will generally appear in several different stages of growth, gather those only that are of a proper age—that is, before they become large and expanded, and generally while they remain compact and firm; detach them by a gentle twist close to the root, but do not cut them out, or leave the stumps in the bed, for they bring on the rot, and become maggoty and infectious to the succeeding young crop, which are advancing in successional growth. Always, as soon as the gathering is finished, cover the bed again directly with the straw litter, especially in cold, wet weather; at any rate it should never remain long uncovered; but only occasionally on dry warm days. If the earth has by any means become very damp, the covering may remain off two or three hours, sufficient to dry the surface; but it should be covered again as soon as possible.

CULTURE OF THE PELARGONIUM.

BY J. KIRKE.

HE Pelargonium is well-known to be the gem of florists' flowers, and is in the present day brought to great perfection, yet I cannot but regret to see so many of our large growers so reserved and backward in bringing their modes of cultivation before the public. In taking

up the above subject, I will make a few remarks on its cultivation, but will not confine myself to growing for exhibition purposes. My object is to obtain ornamental plants fit for adorning the conservatory and like purposes. My experience for ten years has given me good opportunities for judging the most successful mode of cultivating the pelargonium, and by repeated changes of treatment I have detected many things which are practically used in its cultivation, and proved them to be detrimental to the general welfare of the plant.

I will commence first with the cuttings, which should be taken off well-ripened plants at the latter end of June or early in July, allowing two eyes to each cutting. I then prepare some 48-sized pots half-full of crocks, with a compost of loam, leaf-mould, and river-sand, a third of each ingredient. In each pot I put a dozen cuttings, then choose a half-spent dung-bed for them, keeping them well shaded from sun, allowing a pretty moist atmosphere not exceeding 70°. Give air sparingly when beginning to root, and increase it according to their progress of rooting. Pot off into small 60's when ready, and the situation I prefer for them at this stage is a low brick pit with a little top heat; in such a place they will establish themselves, and do well.

The stopping should be the next point to consider, which should be done early to keep them near the pot; they will then break, and should be allowed to make about four shoots, which will be sufficient for a 48-sized pot, in consideration of having good blooms. They should now be watched minutely for a week or so, in order to get them all stopped pretty even, and as they make a little growth should be hardened off, and as soon as possible take off the lights, for the hardier you get them the better they will stand the winter. For early flowering, a few of the best may be potted about September, and placed on a dry stage, and keep them gently growing all winter; but those intended for flowering in May or June should be kept dry in the pit above mentioned, watering very sparingly, and shift into 48's in February; for this shift I prefer two-fourths good loam, one of leaf-mould, and one-fourth of rotten dung, with a good sprinkling of river-sand.

As soon as the shifting is done, should the weather be dull, a little forcing should be given them, but give air on every favourable opportunity, and as the weather gets warmer every day will tell upon them, for they will grow rapidly. Smoking and cleaning should be well attended to, and if any stopping is required it should be done at once. If a few plants be required for later blooming, they may be shifted into 32's, and in this case must be stopped again. By April the plants should be pretty strong, and will begin to take water freely, and a little weak liquid manure may be given them once a week, and the syringe may be used sometimes on fine sunny mornings. I have no doubt I shall meet with a good deal of difference of opinion about the use of the syringe, for it is the idea of a good many growers that it tends to bring damp, spot, and other diseases. But as I never found such diseases among my plants, I have no inclination to alter my views; and my opinion is, where such diseases do exist, it is caused by irregular watering or bad drainage.

Sticking and tying should be the next point to consider, which should be done as they throw up their buds, and give water freely, for at this season the pelargonium will keep its foliage and have a better appearance by an abundant supply of water than it would by allowing it to frequently get dry. Be careful how you apply liquid manure, for if given too strong it would soon put them in a sickly state; and as the flowers open, liquid manure may be discontinued altogether, for the plants will set their blooms and afterwards ripen their wood better without it; in fact, if it continued until the plants are cut down, it is a question of doubt whether the cuttings would

strike.

As your plants cease flowering, they should be stood out in the open air to get well ripened, and should be cut down and kept dry, with a sprinkling overhead occasionally. In the operation of cutting down, three eyes should be left, from each of which it will break, for nothing is got by cutting too near the stem, and very often the death of your favourites may be attributed to no other cause. Six weeks is long enough for the plants to break and make a nice growth, and they should then be shaken out and repotted into smaller pots, taking care to well trim in the roots. Stand them out on a bed of ashes, to keep all worms out of the pots, and the growth they make will be of a hardy and strong nature, and they will better endure being kept close in the winter months. When the time for housing

arrives, they should have a dry stage, and should be repotted into

larger pots in February.

In concluding my few remarks I must say a great deal has been said and written on the pelargonium, but the secret is very much the same as with most other flowers, for there should be strict attention in all plant-growing, and this in conjunction with the above directions would produce ornamental plants, and adapted for any purpose.

Perhaps I may venture to give a short list of the names of those which I consider the best for general purposes :- Rose Celestial, Glowworm, Empress Eugenie, Ajax, Symmetry, The Bride, Vestal, Madame Pescatore, Madame Place, Madame Van Houtte, Géant des Batailles, Larkfield Rival, Desdemona, Blink Bonny, Richard Benyon, and Roval White—the last-mentioned one being a seedling from the superb collection of Mr. Bruce, of the Richmond Road Nursery; petals large, beautiful shape, with a dark spot on upper petals, and an abundant bloomer; it is decidedly the best of its class, and richly merits a place in every collection.

SELECT BEDDING COMBINATIONS.

A FEW CIRCULAR BEDS.

ENTRE of Geranium Rose Rendatler, or Beauté de Suresnes; band of Calceolaria angustifolia; margin of Flower of the Day Geranium.

Centre, a specimen tree, such as Standard Portugal Laurel, Araucaria imbricata, etc.; solid blocks of Lobelia speciosa, or Lobelia Blue King, edged with Cerastium tomentosum. This is an effective mode of

planting circles in which specimen trees are planted, near promenades, walks, etc.; but it needs, of course, that the circles should be separated by oblongs of scarlet,

yellow, etc., etc.

Centre, vase, sun-dial, or tree causing little shade; circle of grass, or Lithospermum fruticosum, or some dwarf green plant; then, circles of Geranium Stella, Geranium Christine, and margin of Geranium Bijou. This arrangement, like the first, admits of variation ad infinitum; the principle being to separate the central object from the colours by a green band, and then to follow with narrow circles of strong colours, and add a bold edging.

Centre of Centaurea gymnocarpa; and broad band of Amaranthus melan-

cholicus.

Centre, vase, statue, or sun-dial; circle of Spergula pilifera; next, circle of

Geranium Flower of Spring, Rose Queen, Cybister, and Christine.

Centre, vase or tree; green space surrounding it to be omitted, and filled instead with Geranium Oriana, or Lady Palmerston; next, Calceolaria canariensis; and outside, a band of Amaranthus melancholicus.

Centre of Amaranthus melancholicus; broad band of Cineraria maritima; narrow margin of Lobelia speciosa. The last two arrangements are suitable for small

beds; we now suggest a few modes of planting oblongs.

Centre, block of Geranium Crystal Palace; broad band of Christine; broad margin of Verbena Purple King. This is bold and brilliant, and very effective on a terrace, if repeated throughout one of the levels, and a neutral circle between every two oblongs; or if a very strong effect is desired, circles of grey and yellow to alternate with them.

Centre, block of Stella; narrow band of Minnie; margin of Purple King Verbena. Like the last, this is full of power, and may be dealt with in the same way as to relief, etc.

Large block of Tropæolum Tom Thumb; margin of Lobelia speciosa.

Large block of Geranium Flower of the Day; broad margin of Lobelia speciosa.

Large block of Geranium Beauty of Blackheath; broad band of Lobelia speciosa.

Large block of Calceolaria Gem; broad margin of Lobelia Paxtoniana.

Large block of Crystal Palace Geranium; narrow band of Calceolaria aurea floribunda; margin of Geranium Flower of the Day. This is a suitable style for beds forming the outer parts of a design. If a pink Geranium is substituted for the scarlet, there will be a gain of light, and a proportionate enlargement of the space.

Centre, block of Calceolaria Gaines's yellow; broad band of Geranium Attraction; margin of Lobelia speciosa. This is a good three-coloured mass to stand

alone. It is less effective when in combination with other masses.

CHAIN PATTERNS.

These are formed by connecting oblongs and circles together by short links, or miniature ribands. They are most appropriate on the margin of spacious lawns, where the surroundings are all of an elegant kind, and in harmony with the Italian style of terrace embellishment. The planting of chain patterns must be bold and brilliant. Let us suppose we have a series of large elliptic beds, and intermediate small circular beds, connected together with links; then it will be in good taste to plant the circles with pink Ivy-leaf Geranium in the centre, and the ellipsis with scarlet Geranium in the centre; then, to surround the two central masses with Geranium Cloth of Gold, and to form the links and margins of all the beds'of variegated Alyssum.

Another good chain may be produced as follows:—a large oval, a link, a small circle, a link, another small circle, a link, a large oval, and so on throughout. Then let the ovals have centres of Tom Thumb Geranium, and the circles have centres of Christine Geranium. Surround the Scarlet Geranium, and the pink Geranium, with Calceolaria aurantia; and edge all the beds, and form the links with variegated

Alyssum.

MIXTURES.

Geranium Cloth of Gold, and Lobelia speciosa, plant and plant, edged with Lobelia Paxtoniana, is a most beautiful mixture.

Perilla and Cineraria has a mournful—indeed, funeral aspect; yet is beautiful,

and very distinct indeed from all ordinary modes of colouring.

Geranium Silver Chain, and Lobelia speciosa, plant and plant, with edging of

Amaranthus, is both novel and effective.

Iresine Herbstii and Centaurea gymnocarpa, or Coleus Verschaffelti, and Cineraria maritima, plant and plant, with edgings of Cloth of Gold, not allowed to flower, is rich, novel, and peculiar.

Verbena Melindres, mixed with Geranium Silver Queen, and edged with Golden Ivy-leaved Geranium, or Verbena Melindres, mixed with Lady Plymouth Geranium,

makes a good match to the last. The edging to be the same.

Amaranthus melancholicus, and Centaurea ragusina, edged with Lobelia spe-

ciosa; remarkably rich and classical.

Geranium Flower of the Day, and variegated Alyssum, mixed plant and plant, edged with Geranium Firebrand, produces a glittering effect; scarcely bearable to the eye when the sun shines, and a surprise to any who have not seen it before.

Delphinium formosum to be planted in rows, fifteen inches apart, and to be pegged down, so that the flowers and leaves will rise only eighteen inches high, as early in the season as the weather will permit; strong plants, full of bloom, of Geranium Tom Thumb to be planted between the Delphinium. For a considerable time this will be a grand combination of blue and scarlet; when the Delphinium is over, the Geraniums will spread, and make a fine self-bed of scarlet. Any grey edging will suit for this.

inger-post for purchasers of plants. seeds. etc.

A SELECTION OF GERANIUMS (ZONATE PELARGONIUMS) FOR VARIOUS PUR-POSES.

Fifty cheap but superb varieties for a small collection, comprising all the colours. - Adonis, Amelina Griseau, Amy Hogg, Andrew Marvel, Beauté de Suresnes, Black Dwarf, Chieftain, Christine, Commissioner, Coquette de Rueil, Cybister, Dr. Lindley, Eugenie Mezard, Excellent, Faust, Herald of Spring, Jules Cæsar, Lady Middleton, Ma-

dame Ninette Sachero, Le Prophete, Lord of the Isles, Madame Barré, Madame Vancher, Madame Werle, Magna Charta, Monsieur G. Natchet, Ornement des Massifs, Pacquita, Rival Stella, Rose Rendatler, Le Grand, Stella, The Clipper, Triomphe de Gergoviat, Virgo Marie, White Perfection.

Twelve Zonate Bedders .- Boule de Feu, Black Dwarf, Christine, Cybister, Rebecca, H. W. Longfellow, Wiltshire Lass, Kate Anderson, Lady Cullum, Indian Yellow, Stella. The true Boule de Feu is far superior to Attraction, and distinct from it, and from several other varieties with which it has been confounded.

Twelve Silver Variegates for Beds .- Alma, Flower of Spring*, Queen of Queens*, Silver Chain, Variegated Nosegay, Variegated Stella, Lady Plymouth*, United Italy, Flower of the Day, Bijou, Jane, Little Beauty, Manglesii*.

Six Gold Variegated for Beds.—Cloth of Gold*, Gold Leaf,* Luna,* Golden

Vase, Mrs. Pollock, Golden Tom Thumb.

Twelve very select (for pots) .- Dr. Lindley, Tintoret*, Chieftain*, Hibberd's May Queen*, White Perfection, Charles Reust, Madlle. Marie Mezard*, Fair Rosa-

mond, Bronze Shield, The Countess*, Yellow Belt*, Mrs. Benyon.

Geraniums (Best of 1867) .- Christine nosegay, rosy pink; Crimson Queen, deep crimson; Glory of Waltham, scarlet; Hector, scarlet; Hon. Mary Ward, white shaded salmon-flesh; Imperial, scarlet; International, beats Black Dwarf; L'Africaine, purplish-crimson; Lilacina, dark lilac; Mr. James Crute, crimson; Mrs. Laing, crimson-scarlet; Mrs. Spencer, salmon; Orion, rosy salmon; Ossian, crimson flowers and yellow leaves; Pink Globe, rosy pink; Queen of Denmark, deep pink; Rosy Circle, white, salmon, and rose; Souvenir de Sir J. Paxton (Gordon), rosy pink; Lady Constance Grosvenor, orange scarlet; Duchess of Sutherland,

rosy purple; Shirley Hibberd, red with violet shade; Warrior, scarlet.

Variegated.—Bronze Queen, Beauty of Surrey, Crystal Palace Gem, Edward George Henderson, Gipsey Queen, Glory of Dulwich, Jetty Lucy, King of Tricolors, L'Elegant, Little Fairy, Mrs. Charles Barry, Pet of the Parterre, Princess Alexandra, Queen of the Fairies, Queen of Tricolors, Souvenir de Sir Joseph Paxton, Wonderful.

A SELECTION OF PANSIES.

Those best adapted for a small collection marked thus.* The selection was made

during an inspection of the stock of Messrs. Downie, Laird, and Laing.

Selfs.—Alexander Tait*, Cherub, Dux, Eclat*, James Fargie, Masterpiece*, Miss Carnegie, Miss Muir*, Queen of Whites*, Rev. John Smith, Vesta, Yellow Queen*, Alex. M'Nab, Amphion, Jessie, Ladyburn Beauty, Mr. J. Graham, Bessie, Cream of the Valley*.

Yellow grounds.—Alex. Whamond*, Arcturus, Czar, Francis Low*, George Wilson, John Elston*, John Downie*, Mrs. Downie, Mrs. Wyllie*, Prince of Wales, William Austin, John Inglis, J. B. Downie*, Lina, E. W. R. Ramsay, General Young, Mrs. Hope, Perfection, Saturn, William Dean, Thomas Martin.

White grounds.—Attraction, Countess of Rosslyn*, Great Northern, Lavinia*, Miss M. Carnegie, Miss Williamson*, Mrs. Moffatt*, Mrs. Laird*, Naomi, Princess of Wales*, Queen*, Victoria, Mary Lamb, Mrs. Hopkins, Nymph, Miss E. Cochran, Lady Lucy Dundas*.

Fancy Pansies.—Belle Esquermoise, Belle Lilleoise, Black Prince*, Caffra, Distinction, Etoile du Nord, Figaro*, Earl of Rosslyn*, Imperatrice Eugenie, Lady Montgomery*, Lady Christian Maule, John M'Nab*, Magnificent*, Michael Ange, Miracle*, Mrs. R. Dean*, Mrs. H. Northcote*, Mulatto, Macaroni*, Noemi Demay, Oriana*, Punch, Princess Alice, Sensation*.

A SELECTION OF VERBENAS.

FIFTY VARIETIES FOR POT CULTURE.

Alexandra, Annie, Antonia, Ariosto Improved, Attraction, Beauty of England, Black Diamond, Black Prince, Blanche of Castile, Brunette, Charles Perry, Charles Turner, Cherry Ripe, Cleopatra, Delicata, Duke of Cambridge, Edward Barnes, Foxhunter, Géant des Batailles, Gladiater, John Keynes, King Charming, King of Lilaes, King of Scarlets, King of Verbenas, Lady Jane Ellis, La Grande Boule de Vicine Leady Lady Lady Lady Chirteen Charles and Charles Charles and Neige, Leah, Lælia, L'Avenir de Ballant, Lord Craven, Lord Leigh, Madame Cointet Aine, Madame Hermann Stenger, Marie Rendatler, Mauve Queen, Minerva, Mrs. Dean, Mrs. Elphinstone, Nemesis, Ocean Pearl, Pallavicini di Brescia, Peep o'Day, Queen of England, Shakespeare, Triomphe de Massifs, Warrior, White Queen, William Dean, Wonderful.

THIRTY BEST VARIETIES FOR BEDS.

Best marked thus *.

White.—Blanche of Castile*, La Grande Boule de Neige*, White Queen.

Rose and Pink .- Long Looked For, Laura, Mrs. Elphinstone*, Ariosto Im-

proved*, Cicely, Leah, Venosa.

Crimson.-Attraction, Crimson King, Fire Brigade* (these two are much alike; the first is best for good soils and situations, the second for bad positions, especially if poor and dry), Brilliant de Vaisse*.

Scarlet .- Lord Clifden*, Mrs. Woodroffe, Startler, Scarlet Cushion*, Melindres. Yellow.—Junius, fiery orange*, Orange Perfection, orange pink, lemon eye. Lilac.—King of the Lilacs, Napoleon Rossi, Lælia, Lady Leigh*.

Blue.—Celestial Blue*, Blue Shade, Azurea superba, Madlle. Marie Rendatler. Purple.—Ocean Pearl*, Purple King*.

A SELECTION OF PELARGONIUMS FOR EXHIBITION AND DECORATION.

Best Thirty for Show.—Achille. Ardens, Beacon, Beadsman, Candidate, Caliban. Conflagration, Fairest of the Fair*, Desdemona*, Empress Engenie, Garibaldi*, Golden Hue, Fair Rosamond, Jewess, John Hoyle, Lady Canning, Lilacina, Madlle. Patti, Lord Clyde, Nestor, Osiris*, Pericles, Peacock*, Rose Celestial, Roseum, Spotted Gem, Sanspareil, Sir Colin Campbell, The Bride, Viola*.

Best Twenty-four Fancies. - Arabella Goddard*, Celestial, Clara Novello*, Cloth of Silver*, Clytie, Crystal Beauty, Countess of Waldegrave, Delicatum, Edith, Ellen Beck, Evening Star, Godfrey Turner, Lady Craven, Lady Boston, Lucy, Lady Towers, Maroon*, Marionette*, Modestum, Miss in her Teens, Queen of Roses, Roi des Fan-

Best of 1867.—Alfred, Brilliant, Favourite, International, King of Flowers, Lord Lyon, Milton, Model, Rustic. Fancies: Duchess of Buccleugh, Liberty, Memnon, Miss Louisa Pyne, Princess Helena, Sylvia.

A SELECTION OF CARNATIONS, PICOTEES, AND PINKS.

CARNATIONS.

Scarlet Bizarres.—Duke of York, Oliver Goldsmith, and Prince Albert. Crimson Bizarres .- Albion, Indispensable, and King of Carnations. Pink and Purple Bizarres .- Lady of the Lake and Twyford Perfection. Purple Flakes .- Beauty of Woodhouse, Colonel Smith, Earl Stamford, Mayor of

Oldham, and Mayor of Nottingham.

Scarlet Flakes.—Africana, Meteor. and William IV. Rose Flakes.—Aglaia, Miss Napier, Mr. Martin, and Samuel Moreton.

PICOTEES.

Red Edged .- Forester, Garibaldi, Lauretta, Mrs. Lockner, Prince Albert, Sparkler, and William Summers.

Purple Edged.—Advance, Amy Robsart, Emma, Favourite, Margaret, Mrs. May, and Rev. George Jeans.

Rose and Scarlet Edged.—Elizabeth, Miss Sewell, Princess Alice, Flower of the Day, Miss Williams, and Scarlet Queen.

PINKS.

Agnes, Attraction, Bertram, Constance, Dr. Maclean, Excellent, Jessica, Little Gem, Mary Ann, President, Annie, Beauty, Blondin, Device, Ernest, Helen, John Ball, Lord Charles Wellesley, Minnie, and Victory.

NEW PLANTS.



ASTRONEMA SANGUINEUM, Blood-coloured Gastronema (L'Illust. Hort. t. 507).—Amaryllidaceæ. This is a fine plant belonging to the Cyrtanthus section of Amaryllis. It is a native of South Africa, and one of the many valuable introductions of Messrs. Backhouse and Son, of York. The bulb is oval, the leaves linear, or linear-lanceolate, the

flowers bright vermillion, with gold yellow throat.

MARANTA ROSEO-PICTA, Rosy-painted Maranta (L'Illust. Hort. t. 508).— Marantaceæ. It is not yet quite certain whether this plant is a Maranta, but it is certain that it is most beautifully variegated, the orbicular leaves being of a deep green, with rosy or carmine midrib, and crescentic lines near the margin; the young leaves are brilliant yellow and carmine.

CAMELLIA CONSTANTIN TRETIAKOFF (L'Illust. Hort. t. 509).—A superb variety, the flowers of great size, beautifully modelled, the colour blush warming into delicate

pink at the base of each petal.







HELIOTROPIUM CONVOLVULACEUM.

Heliconia Humilis, Dwarf Heliconia (Bot. Mag. t. 5613).—Musaceæ. A magnificent stove plant, with leaves all radical, and measuring with their petioles three to five feet in length. The inflorescence is a scape bearing about four distichous spathes of a brilliant scarlet colour, in which are enclosed a number of vellowish flowers.

HELIOTROPIUM CONVOLVULACEUM, Convolvular-flowered Heliotrope (Bot. Mag. t. 5615).—Boragineæ. A beautiful American annual, grown by Mr. Thompson, of Ipswich. The flowers are abundantly produced; they are salver-shaped, white, and delightfully odorous.

GARDEN GUIDE FOR MAY.

Kitchen Garden.—It has been a dreadful seed-time, and all sorts of things are in arrear. The best advice we can give to those who have not yet sown all their spring seeds, is to sow at once. Several good things should also be sown now for succession, where things are going on well, such as a few peas, beans, spinach, and saladings. The best peas to sow now are Veitch's Perfection, Ne plus Ultra, Mammoth Marrow, and Stuart and Mein's Prince. Lettuces should be sown now on heavily manured ground, where they are to remain, and they will be good, but if transplanted, they will be no good. Sow also kidney-beans, and if not provided with marrow plants, prepare the hillocks, and sow the seed upon them. It is better, however, to turn out thrifty plants from pots on to beds five feet wide, made with a foot depth or more of rotten dung, and six inches of good loam on the dung. This mode ensures a gentle warmth to start the plants, and the beds answer well for sea-kale, asparagus, or onions the following season. Another pinch of Walcheren broccoli should be sown. All winter greens should be forward by this time, and ready for thinning out, to make plantations of the forwardest.

Flower Garden.—The principal business now is bedding out. It is most important to have the plants well hardened first by careful exposure to the weather, at first by day only, and in the end by night as well. Choose dull dry weather for bedding, if possible, and have the plants rather dry, for if recently watered, they do not turn out nicely. The Japanese striped maize, the various new sorghums, and andropogons may be sown now to figure as ornamental grasses; but we cannot advise any one to grow them in the expectation of eating bread made from their seeds. As for the maize, it is a splendid thing, and a shilling packet of seed sown on the first of May will do as well as ten shillings' worth of plants bought in from a nursery. But those who want plants may obtain them true from Messrs.

Carter and Co.

Fruit Garden.—The quality of every kind of fruit is improved by early thinning

the crop, and mulching the ground with half rotten dung.

Greenhouse.—Green-fly will be found on many plants, and, generally speaking, the plants infested will now do better out of doors than under glass, and the fly will disappear soon after they are put out. If it is not advisable to put them out, shut up and fumigate, having everything quite dry at the time; syringe well next morning.

** Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale this year.

NEWS OF THE MONTH.

THE PARIS EXHIBITION was opened without ceremony on the 1st of April, though then, as now, in a most unfinished state. But with all its imperfections, with all its attempt to grasp more than seems possible, it is a much grander and certainly a more complete affair than it has been represented. In the park and the horticultural ground there are more things for English gardeners to see and admire than they can reasonably expect to be again brought together during the term of the present generation. More especially worthy of notice are the trained fruit-trees, of which there are innumerable examples, exemplifying the perfection the French cultivators have attained in this department. Lakes, fountains, rockeries, aquaria, and conservatories, are features now full of attractions and the inner garden, which is as an oasis to the visitor wearied with inspection of the courts, is now being planted with the most brilliant bedding and sub-tropical plants. It is the first time that horticulture has been represented at a great international exhibition, and it is being so extensively represented at Paris, that we advise our readers generally to provide, in their programmes of pleasure for the present season, one trip to Paris at least.

EXHIBITIONS IN LONDON.—It is with great pleasure we record a successful experiment by the East London Amateurs' Society, in the holding of an exhibition

of spring flowers, which took place on the 6th of April, in the Vestry Hall, at Bow. This is the first time that a small local society has attempted anything of the kind, and it was the more satisfactory that the exhibition, besides being novel, was good. Hyacinths, Tulips, Dielytras, Auriculas, Narcissus, Cinerarias, Cytisus, Primulas, Cyclamens, and Geraniums, were shown in plenty, and in excellent condition. The most successful exhibitors were Messrs. Grove, Howard, Deacon, Sinclair, Grace, Cheshire, and Hardy. Mr. Prestoe, superintendent of Victoria Park, put up a fine collection of Caladiums, Dracænas, and other plants of fine character. Mr. Forsyth, of Brunswick Nursery, Stoke Newington, presented a collection of Cinerarias and Hyacinths, that were eminently effective; Mr. Allen, of Norfolk Nursery, Shacklewell, made an exhibition of tree ferns, miscellaneous plants, and

cut flowers, most tastefully displayed.

The most important of the great shows, was that held at the Regent's Park, on April 13. On that occasion Azaleas were superbly shown by Mr. Turner, Messrs. Lane and Son, Mr. B. S. Williams, and others. Pot roses from Mr. William Paul, and Messrs. Paul and Son, were superb, and included examples of the following:—Prince de Sortia, Anna Alexieff, Madlle. Berthe Leveque, Senateur Vaisse, Madame Roussett, Centifolia Rosea, Marquis de Foucault, President Mas, Fisher Holmes, Madame Boll, Madame Fillion, Celine Forestier, Madame Hoste, Madame Damaizin, Alba Mutabilis, Bernard Palissy, and Glory of Waltham. One of the most interesting features of the show was a batch of that most charming of lardy herbaceous plants, Spirea Japonica, sent by Mr. Bartlett, of Hammersmith. The plants were in 48-sized pots, with heads of leaves about a foot across, above which were three or four spikes to each plant of their exquisitely beautiful snow-white flowers. Not many novelties were shown, and amongst them there were none of any great importance.

TO CORRESPONDENTS.

GROUND VINERIES.—Sylvia will find in the Floral World of April, 1866, a practical description, accompanied with a figure, of Wells's ground vineries.

Stove for Plant-house.—M. N.—You will find Hays's constant stove the cheapest, cleanest, most simple and certain thing of the kind you can have to keep the frost out of a house, measuring 17 feet by 10 feet. The other stove is more

powerful, but, all things considered, less desirable, at least in your case.

Greenhouse Construction.—H. N.—1. A lean-to facing south will be best for most purposes, especially grapes, geraniums, succulents, and for pushing on odd toings to plant out. A lean-to facing west will be useful, and better than a south aspect if you grow ferns, camellias, and azaleas in it. 2. An east aspect is to be preferred for subjects that flower in spring, but a west aspect is best as a mere preservatory, because warmer than east. 3 is answered in 2. 4. A flue need rise only a few inches in a run of 24 feet; if no rise at all no matter, as the chimney at the further end will secure draught, and the taller the chimney the better the draught. The flue need only be carried along one side, but as the house is small, it may be taken all round, so as to have the chimney over the furnace; in which case it must rise a all title all the way. A flue all round will consume more fuel and give more heat than one through only.

5. We have known hundreds of span-roofed houses heated by flues; why, only a few years ago, all houses were so heated.

6. No, we avoid prices as much as possible; what is cheap in one place is dear in another. Ask a tradesman in your district.

7. What you think is wrong.

8. No.

Variegated Conifers.—W. B. R.—The great difficulty with these is the propagation. Two years ago a superbly variegated Araucaria imbricata was exhibited at Regent's Park, but has not since been heard of; the difficulty was in multiplying it. There are many variegated varieties of Thuia, Cupressus, Retinospora, and Juniperus in cultivation, but these can be multiplied by cuttings; so when a sport occurs there is no excuse for losing it. As you are a collector of these things, you may hear of a few new and most beautiful varieties by sending a line to the Lough

Nurseries, Cork, and the Botanic Nursery, Biggleswade.

Plunging System.—Simson.—Any plant of somewhat compact habit, if suitable

in colour, may be grown for this purpose. There is just nothing in it beyond this, that the plants are all grown in pots, and are brought forward when at their best.

and removed when their best is over.

SUB-TROPICAL PLANTS .- P. B. - Mr. Prosper has treated of all the palms that are adapted for outdoor decoration only two months since. Last year there were several articles upon these plants. Look through the numbers for January, February, March. and April, 1867, and you may find all you want. The "Gardener's Gazette" we know nothing of.

EUCHARIS AMAZONICA.-L. B. R.-In the FLORAL WORLD for May, 1866, is a paper by Mr. Howard, who exhibited the gigantic specimens at the International Exhibition, and who is known to be the ablest cultivator of this plant in England. You will find, by perusing that paper, that Mr. Howard never allows the plants to rest, but shifts them on and on, and gives rich soil and abundance of water. To dry

it off is to risk killing it entirely.

RHYNCOSPERMUM JASMINOIDES .- L. B. R .- Your plant would certainly thrive in a border at the back of a cool greenhouse; indeed, there is scarcely a better place for it. Your gardener's proposal to "dry it off," is equivalent to treating a tree like a potato, for this plant is a tree, though of the climbing or trailing sort, and needs

the ordinary treatment of nearly hardy hard-wooded plants.

HARD WOODED PLANTS .- G. A. G. asks if heaths, epacrises, and acacias are cut below where they were pruned to last year will they shoot out again? Well, perhaps they may, and perhaps not. Sometimes when hard-wooded plants are so severely pruned they die instead of shooting, and sometimes they shoot very freely. We found in our garden last year a lot of once fine plants of Cytisus, Coronilla, Epacris, etc., that had been humbugged, and their shape and beauty were gone. We cut them down very low indeed, and after that almost forgot them, but they are now fine plants, for they grew freely after the severe pruning. G. A. G. must take the risk if desiring to prune below last year's pruning, which we should call very bad practice, unless there Probably the black soil sparkling with sand may do is a special reason for it. instead of peat for hard-wooded plants, but we cannot pronounce on the properties of a soil that we have not seen. The only way to try it is first to grow a few plants in it for a year and judge by their behaviour.

SCORZONERA .- E. M. will find in the FLORAL WORLD of April, 1867, a chapter Scorzonera is grown in the same way, and if the seed is sown now it

will have time to make a good root.

AUCUBA BERRIES.—C.J.—When a few berries only are to be dealt with, it is best to sow in pots, pans, or boxes. Any light soil will do; cover an inch deep and keep the soil moist. Artificial heat is not necessary, but when the plants appear, guard them against fierce sunshine. The seeds are ripe now and may be sown directly.

General Index.—J. E. S.—We do not contemplate publishing any general index, the expense would be considerable and we should probably sell very few;

there are not many who appreciate such things.

Selections of Plants, etc.-W. R. Sibley.-You seem not to be aware that in the "Garden Oracle" we publish every year lists of the best varieties of all the popular flowers, those lists being prepared from notes made during visits to gardens and exhibitions, and our own collections during the preceding summer. To the best of our ability we keep the readers of the Floral World informed on these matters, but in the "Oracle" the whole affair is dealt with at the commencement of the year, to render buyers of plants au fait as to the several advances in their favourites. The preparation of such lists is a much more severe task than you suppose, especially when we come to the best twelve or best six in a class comprising hundreds or thousands of things. It needs not only knowledge and taste to discriminate, but also opportunity. Unless we attended all the exhibitions and visited all the good gardens, it would be impossible to do anything like justice to this department ; yet we trust justice is done to it, and so say thousands of amateurs who make the "Oracle" their familiar book of reference.

Various.—Mrs. D.—The pretty plant, of which you send a drawing, is Trichonema columna, a rare British plant, flowering in March and April, well adapted for the garden, and thriving on a sandy soil .- W. Wilson .- Mr. Walsh will give us figures of auricula frames shortly. If you want a small collection of good varieties, and are afraid of incurring greater expense than you can afford, write to Mr. Turner, of Slough, for as many as you want, and name the price, leaving the selection to him, you will thus obtain good sorts at from 30s. to 40s. per dozen, and of course he will send you such as he can propagate most readily. The high prices of some of the sorts are consequent upon the difficulty of multiplying them. —F. W. Mackie.—All the mysteries of multiplying roses by grafts, buds, cuttings, nay, even by leaves, will be found explained in the fullest and simplest manner in the "Rose Book." It would be unreasonable to go over the matter again in the Floral World, yet we endeavour to keep our readers informed on the progress of the rose and rose-growing.—W. W. W.—Crinum capense is quite hardy. The best way to grow it is to put it into a large pot, leam, with a good proportion of manure added, and keep it in a cool house from October to May, and from the 1st of May to the end of September plunge the pot one inch deep in water out of doors. Phormium tenax might be grown in the same way.

HEATING WITH A FLUE.—A letter in the February number of Floral World, entitled "Caught Napping," made me congratulate myself on having no greenhouse, but only a couple of pits to attend to; which pits protected my bedding plants through the severe frosts of January, without any attention after the first (very careful) covering up. Certainly, I should think twice before making up my mind to erect a structure requiring fire-heat, if in such a frost as that which set in shortly after Christmas—though no doubt the severest we have had since the great frost of 1860 the heating apparatus were to require "constant attention the whole of the night." I conclude that the houses R. T. G. had in his mind, contained collections of stove plants. In this neighbourhood the thermometer did not, as far as I know, descend to zero. One on an earth wall in my garden marked 6°. On Christmas Eve, 1860, one on the grass, or rather on the snow, marked 1°. On the 8th instant I saw a greenhouse, heated by a flue, where, on the two nights last January, when there were here 26 degrees of frost, or probably 29 in a more open situation, the fire had been carefully banked up at 10 p.m., and then left till morning. The plants, mostly bedding plants, were all saved, and certainly looked most flourishing when I saw them. No covering of any kind had been put over the glass. That flue, it must be

allowed, did its work pretty well. -A.N.

Catalogues Received.—Mr. Charles Turner, Royal Nurseries, Slough, "General Spring Catalogue, 1867," contains full lists of pelargoniums, azaleas, auriculas, fuchsias, dahlias, picotees, etc., etc. One of the best catalogues extant.—Mr. John Morse, Dursley, Gloucestershire, "Catalogue of Cuttings." Mr. Morse continues to offer cuttings of all kinds at a price which places within the reach of the amateur who possesses a little practical skill, the means of obtaining many rare plants and many novelties at a quite nominal price. The catalogue embraces all classes of subjects for stove, greenhouse, and garden .- F. and A. Smith, Park Road, Dulwich, London, S., "Catalogue of Plants for 1867." Comprises descriptions of Messrs. Smith's new geraniums, primulas, azaleas, fancy pansies, and petunias, besides enumerating the general nursery stock.—A. Verschaffelt, Ghent, "Price Current for Spring, 1867." An important catalogue for large buyers of camellias, azaleas, rhododendrons, tree pæonies, and orchids; useful also to the thorough amateur who is on the look-out for choice thiugs.—T. Sampson, Yeovil, Somerset, "Catalogue of Bedding Plants and Roses, 1867." Copious, admirably arranged, and well adapted to suggest to purchasers the best varieties for their several purposes .- Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, London, N.E., "Catalogue of Evergreens, Deciduous Trees, Fruits, Roses, Herbaceous, and Alpine Plants." A very nice catalogue, well adapted for consultation by lovers of good things. We were astonished lately, when making a visit to this nursery, to find about twenty acres of choice herbaceous plants, and the whole collection kept in the most orderly manner, true to name, and the plants admirably grown. No one taking a first look at the place would expect to find much good in it, for it is most uninviting, having never been designed to attract public attention. But beyond the little show garden, which is by no means showy, there is a perfect El Dorado of choice plants, thousands and thousands of the best Delphiniums, Dianthus, Spirea, Saxifraga, Polyanthus, Primula, Campanula, Aster, Daisy, etc., etc. It is not a place for loungers or sight-seers; but for people who are in earnest about buying good things, and have some idea of what they want, it is one of the best nurseries in the kingdom.

THE FLORAL WORLD

AND

GARDEN GUIDE.

JUNE, 1867.

THE FRUIT CROP OF 1867.

Thas been frequently remarked in the Floral World that every season is in some way extraordinary, and we

feel assured none of our readers will demur to this assertion, that this season is as extraordinary as any within remembrance. We have had a long and tedious winter, dragging far into the spring. Nearly all early-sown seeds perished in the ground; those sown in April were forced into rapid growth by the torrid weather of the early part of May, and were afterwards well nigh killed by the arctic weather that followed. The heat and the cold of May, 1867, will be registered amongst the curiosities of British meteorological records. We have had many opportunities of judging the state of the fruit crops, for during the past few weeks we have travelled over the greater part of the south of England, both east and west, and have touched a few points in the midland. From all that we have seen and heard, it appears that of Apricots there is a promise of a large crop, and that is pretty generally distributed. Of Peaches and Nectarines, the crop, generally speaking, is small, but there are many exceptions in favoured districts. Pears are, to a great extent, a failure; certainly there is not anywhere an average show of young fruit. Of Apples and Cherries, there is abundance. The fruit crop is, of course, dependent on a variety of circumstances; the weather in autumn in great part determines it, for if the young wood and the fruit spurs are not well ripened, there must be a limited production. But however perfect the trees may be as to condition, the formation of fruit is next to impossible if the weather is cold and wet when the trees are in bloom. As a rule, the several kinds of fruit-trees are tolerably regular in their several seasons of flowering, and follow each other in an established order of sequence. In the present year, however, there has been a little deviation from the established order of things, and instead of pears, plums, and cherries being, as they usually are, far in advance of apples, they were kept back by cold until the apples, feeling the cold less, had so far advanced as to be ready to open with them. Consequently we have in many VOL II .- NO. VI.

instances seen all these trees in bloom at the same time in the same garden; but the pears were sufficiently in advance of the apples to be caught in an easterly blast accompanied with rain, and where the trees make now but a small promise of fruit, the failure may be fairly attributed to the ungenial state of the elements at the time the bloom was at its best.

In several places of the west of England we have seen the peartrees as thickly covered as to indicate that if not well thinned by art or nature, they must be broken down by the weight of fruit; nevertheless we expect it will prove that, generally speaking, pears are scarce. The sudden outburst of warm weather just preceding the 20th of February, forced many apricot-trees into bloom, and very bad weather followed that date; yet there is in most gardens, both in the east and west of England, a very fair show of fruit. It curiously happens that in several cases we have this season had pointed out to us apricot-trees that were protected by nets, or sheets, or otherwise, and that show no fruit to pay for the care bestowed on them; while in the same garden, or in gardens close by, other trees similarly situated as to soil and aspect, and that were left wholly without protection, have an abundant sprinkling of young fruit. Thus there are two sides to the question of protecting wall-trees. However, on the other side of this question we can say that in almost every case where we have seen good promises of Peaches and Nectarines, the trees were protected, and needed the It is the custom with many experienced cultivators to shade the trees during the day, and fully expose them at night, in the event of warm weather occurring in February. This practice tends to retard the bloom, and is usually attended with good results.

But it is every season becoming more and more manifest that for all the more tender kinds of fruits we must make use of glass, save and except in some of the warmer districts of the south and west, where the winters are rarely severe, and the spring frosts so common and so destructive in the eastern and northern parts of the country are comparatively unknown. If it be asked if the climate is less capable of producing wall fruit than heretofore, we have no hesitation in replying that in our opinion it has changed considerably of late years in this respect, though as to the mean temperature of the year, and the average rainfall, there may, perhaps, be no evidence of change. It must be remembered that wall fruits were never abundant in this country from year to year, without exception. There have always been good years and bad years, and in times when a peach-house was a luxury for the wealthy only, people were content to have all that could be got from walls, and when they got nothing, they believed it was inevitable. But times have changed; rents have risen, land and labour continually increase in value, and if we plant fruit-trees in our gardens, we must, in self defence, compel them to bear fruit; we cannot afford, nor is it desirable, that we should be satisfied to trust entirely to the promiscuous results of out-door growth in the cultivation of tender fruits; for the crop of one season when, as now, there is a pretty general failure, will amply pay for the means of producing it, when we make the best possible use of glass, and, to a great extent, escape the vicissitudes of our uncertain springs. One hour of sun to peach-trees in bloom under glass will insure the setting of abundance of fruit; but the same hour of sun to peach-trees on walls may do harm by pushing them on when there is no likelihood of good weather following, so that the best the cultivator can do for his wall trees is, to screen the sunshine from them. The mere employment of glass without the aid of artificial heat, is equivalent to the production of an improved climate; hence the multiplication of orchard-houses, which have completely chauged the aspects of fruit-culture in this country. There have been many mistakes, and there will be mistakes; but the orchard-house has become an institution, and has amply vindicated its claims by results.

As we are speaking principally of failures in fruit-growing, it seems advisable to offer a few words on failures in orchard-houses. First, then, we may say that small houses are comparatively useless. It is impossible to ventilate small houses in a manner suitable for fruit-trees; and on the other hand, if they are not ventilated, a few hours' sun makes them destructively hot, as on the other hand, a sharp frost makes them destructively cold. What with rapid and extreme alternations of temperature, and occasional cutting draughts, trees in small houses have but a poor chance to produce a crop of fruit. If it be asked what we mean by the word "small," we reply that we consider a house thirty feet by fifteen, or thereabouts, to be the smallest in which should be attempted to grow fruit; but if the House is properly proportioned, and built with a view to the purpose it is to be devoted to, the larger it is the better. A great body of air, a broad expanse of glass admitting abundance of light, and a considerable extent of borders retaining for a long time an equable temperature, being neither heated nor cooled quickly, are conditions eminently favourable to the production of fruit; and in the case of peaches, nectarines, pears, and figs, there is in this country no certainty of fruit without the aid of a suitable structure; but given a good fruit-house and a skilful cultivator, and we may reasonably expect fruit annually.

The rough shed-like houses at first recommended by Mr. Rivers never met with much favour. The fact is, amateurs soon tire of ugly contrivances and make-shifts, and as few private persons build for themselves, the construction of a rough house is not generally attended with so great a saving as will sufficiently make amends for lack of appearances. The best possible houses for fruit culture may now be obtained at rates so far below what have been usually hitherto paid for such, that in every good garden an orchard-house should now be considered a desideratum, and, we repeat, the larger it is the better; and to that we add, that if the maximum of fruit produced by a minimum of labour is the object of the proprietor, it is far better to plant the trees in open borders, and to abandon all idea of pot culture. The incessant watering, the annual dressing, and the many other cares that attend the cultivation of fruit-trees in pots, render that mode objectionable in gardens where a few hands have to accomplish much work; but when the trees are planted out,

they in great part take care of themselves; and having always in view to multiply the horticultural enjoyments of our readers at the least possible cost, we say, build as large a house as possible—build it well, and plant out the trees with ample space between them for

admission of light and circulation of air.

We can refer back with pleasure to the many designs for fruithouses which have been made public in the FLORAL WORLD, and especially those from the fertile invention—invention made additionally valuable, because conjoined with abundant practical experience—of Mr. Howlett, one of our oldest and most valued of contributors. If houses ready made, and needing only the hand of a skilful labourer or the village carpenter to put them up, are required, then those invented and patented by Sir Joseph Paxton are undoubtedly amongst the very best that can be adopted. The extreme simplicity of the construction, the perfect ventilation, and the flood of light they admit, are conditions eminently favourable to fruit production. The old-fashioned houses, with heavy rafters and restricted ventilation, that always answered so well for camellias and azaleas, are, as a rule, the worst in which fruit-growing can be attempted. Sir Joseph understood as well as any man that ever lived what were the requirements of fruit-trees, and his invention is a monument to his memory which will bear fruit literally and metaphorically to his fame in perpetuity, unless the climate should change to that of the south of France, and then we shall have not much need of glass for fruit culture. We have lately seen the cheap fruit-houses designed by Mr. Ormson, of Stanley Bridge, Chelsea, and to which he applies the term Paradigm (example houses). These are made without rafters of the ordinary kind; all the parts are produced by machinery to a uniform pattern, the system of ventilation is admirable, and they are as elegant in appearance as any structures we are accustomed to meet with, costing twice as much, compared with the area covered. As for old walls with fine old trees upon them, the glass coverings ("Scott's glass walls") manufactured by the St. Pancras Iron Company, deserve notice for their cheapness and efficiency, for by means of these a wall becomes a lean-to house at a comparatively trifling cost, and the trees are at once protected from the destructive influence of the cast winds, and every ray of sunshine, instead of being feared by the cultivator, is welcomed as affording them life and strength.

Effects of the Past Winter.—I see you have inserted notices of various losses from the late frosts in other parts of the country. I beg leave to tell you that we here at Ashford, in Kent, as well as others in the neighbourhood, have also been severe sufferers. I myself have lost most of my evergreens, especially Laurestinuses, Bays, Arbutus, Rhododendrons, and even strong Laurels, as also some of the choicest named standard and dwarf Roses, and several terra cotta vases I bought of Whitton, of Stamford, warranted to stand the frost, which, however, crumbled to pieces. I also lost four acres of Matson's Purple-top Swede Turnips, the same as Suttons, of Reading, call their Champion. By inserting this, you will save me the trouble of answering innumerable letters from ladies who knew and admired my plants much, and who have suffered equally with myself. Turnip seed, I fear, will be very scarce, as I see cattle-feeders are reducing their stock, owing to the great scarcity of even feeding-turnips for preparing cattle for May markets.—J. F.

SOME NOBLE HARDY PLANTS FOR THE FLOWER GARDEN.

BY KARL PROSPER.

HERE are many hardy plants of quite noble character that are as yet comparatively unknown in English gardens. It cannot be a mistake to mention them, with a few words as to their appearances and habits, and the cultivation they require; for they are, generally

speaking, inexpensive in the first instance, and require no glass houses and no expensive appliances or long-tried skill to keep them when they are once obtained. I shall in this paper direct attention to a few that I think should have a place in every garden where handsome hardy plants are valued. First let me make a few remarks on some that are tolerably well known, yet are not to be found in many of the gardens of persons who nevertheless appreciate beautiful plants. The Pampas grass (Gynerium argenteum) is one of the most noble of all; but unfortunately, in many of the eastern and northern parts of England, it was destroyed by frost in the winters of 1860-61, and 1866-67. But as it is cheap and grows fast, its occasional destruction should not be an argument for its omission from any garden. It was at first recommended to plant this grass in richly-manured damp hollows, and it is true that in But as it comes from a such spots it grows most luxuriantly. warmer climate than this, it is far safer to plant it on a mound in rich loam, as in such a case it has a good opportunity of growing freely, and in the event of a severe winter is so comparatively dry at the root (being elevated) it has a chance of escaping injury. fine example of it is one of the most elegant objects that can be found in a garden, and the flower spikes may be cut and kept for winter bouquets, and will last several years similar to this. But of dwarfer growth is the new reed grass,

Arundo conspicua, which begins to bloom in June, whereas the pampas does not bloom till October. This, though fond of moisture, is safest on an elevated bank, and I can say from observation, that though in a very dry position it does not suffer, though in its native

clime it is a marsh grass.

The Tritoma uvaria is one of the grandest flowering plants it is possible to plant in an English garden, and so cheap and easily grown, that I really wonder it is so scarce that I only see it in such as I call good places. It may be planted in the most exposed garden in this country with perfect safety; even the terrible frost of January last did not, I believe, kill a single plant anywhere; certainly I have seen it survive that frost unhurt, in gardens where the Pampas and Arundo conspicua in the same bed were destroyed. Plant it in ground heavily manured, and leave it alone several years; its splendour is not to be described, and it is not like anything else in cultivation.

Having mentioned these two fine subjects, I will now more par-

ticularly enumerate a few that are sure to please, and that are

procurable at every good nursery.

Lilium auratum.—This is so cheap now that fine bulbs may be purchased at from half-a-crown to five shillings each, though only four years ago it was greedily bought at ten guineas a bulb, and was cheap at that price. I cannot stop to describe this wondrous lily, suffice that the flower is of immense size, and has golden stripes over white ground, and that as many as forty-seven flowers have been produced on one plant, and all expanded at the same time. As a cool greenhouse plant it has no equal, but it is hardy, and may be planted in the open garden with perfect safety. Plants just growing may be planted out now, and will flower in July or August. Probably it will grow well in any good mellow loam, if enriched with leaf-mould and quite rotten manure, but I recommend it to be grown in pure peat of a lumpy, turfy nature, as in this kind of soil I have found it to grow most freely, and the flowers are of the most gorgeous description. If the bed it is planted in is damp, or the position extra cold, the bulbs might be taken up in November, and put in sand till March, and be then potted, and when the pots are full of roots planted out again in May or June.

Lilium giganteum.—This is a grand lily, the pure white flowers stand on a noble pillar of green, and the leaves are large and highly varnished. Five years ago I paid three guineas each for bulbs, but I can now obtain them for five shillings each. It is quite hardy, though not generally known to be so. This I recommend to be planted in pure peat of a tough turfy nature. From the 10th of May to the 30th of June it should have half a gallon of water to soak the ground all round it twice a week, except when there is heavy rain, and then for a time the watering may cease. I have seen fine plants of this lily lately fresh and vigorous, throwing up flower-stems in gardens where Arundo donax has been cut down to the ground, and Bambusa gracilis is almost destroyed. These plants have passed three winters where they now are. Who then can

doubt the hardiness of the plant?

Arundinaria falcata is a bamboo growing twelve feet high, full of grace and beauty. I cannot imagine a more splendid plant for a sheltered nook in a "choice garden;" its colour is so fresh and pleasing, its form so peculiar, so "tropical" like. It is strange that though this grand plant will grow in any ordinary good soil, say wherever the soil will grow a cabbage, that few people have it, though there are thousands of pounds spent in bedding plants that are seen in their proper beauty only for a few months, and have to be constantly renewed. But each to his taste; my duty is to direct attention to good things, and there leave the matter.

Crambe cordifolia is a gigantic kind of seakale. All our readers know that the common seakale of the kitchen garden is a fine plant, and quite worth a place in the flower garden. But this is absolutely grand, and will grow in any soil, but will do best in a good, sandy loam with plenty of good manure. Find a place for it first in the shrubbery, and having become acquainted with its

splendour you will be sure to find a place for it in the flower garden

where some distinct and peculiar plant is required. To increase it you have but to pot a few pieces of its fleshy roots, and when they

begin to grow freely, plant them out.

Crinum capense.—This superb lily-like plant, with graceful dracena-like leaves, and a long-necked bulb, is quite hardy, though usually regarded as a plant of the stove. To grow this to perfection, plant it beside water in a sunny spot, in good loam, and leave it alone. Or it may be grown in a pot, and from the 1st of May to the 1st of August, the pot should be plunged one inch deep in water. A few such plants in a garden will mark its possessor as possessing some taste, not so any quantity of ephemeral subjects that make colour only, and sometimes not much of that.

Dracæna australis.—Superb for elegance, and most tropical in outline; will live winter and summer in the warmer parts of England. At Torquay or Exmouth, I should plant it out and leave it; in cooler places I should keep it in a pot, and plunge it out all the

summer.

Phormium tenax, the New Zealand flax, which almost rivals the noble Cordyline indivisa in beauty, is quite hardy in all the southern counties, and is everywhere a fine cool conservatory plant.

It requires a good loamy soil, and abundance of water.

Delphinium formosum is so well known that I am half ashamed to mention it; but I am justified, because very few do justice to it. How superb are its huge spikes of flowers of a heavenly blue, and how thoroughly hardy it is, and at home in any kind of soil. has one great enemy—the common slug, and that is its only enemy, for neither frost, heat, nor wet injure it. Gather the seed as soon as ripe, and sow it at once, and let the plants remain until the following March, and then transplant them to where they are to flower, and sprinkle soot, lime, or wood ashes amongst them, to keep away the slugs. They improve every year, and are superb when three years old. A fine effect may be produced by planting a large bed with them in rows two feet apart. When they show their flower-spikes peg them down, and plant scarlet geraniums, in rows, between them. Then you have intense scarlet and intense blue in When the delphiniums have done blooming, the the same bed. geraniums will begin to spread and hide them, and the bed will be scarlet only.

Aralia papyrifera.—This is the rice-paper plant of China and Japan. It is superb in character, and usually quite hardy; at all events, it is so in Battersea Park. It may be kept in any dark place, or under a greenhouse stage, all winter; so any of our readers who wish to make a small forest of it may do so without difficulty. One or two plants on a lawn give a most refined air to the spot.

Phytolacca decandra.—This is at once a curious and beautiful plant, more curious than beautiful, perhaps, but eminently deserving a place in the shrubbery border. It has a turnip-like root, and a huge herbaceous stem, which bears a long spike of fruits like blackberries. Imagine a great cob of Indian corn, with these blackberries instead of the usual grains of flinty corn, and you have an idea of the nature of the fruit. As to its hardiness, I

have seen it at Nottingham in a garden, where it has grown most luxuriantly for the past seven years. It is the plant known in America

as the "Virginian poke."

Rheum emodi is a huge-leaved rhubarb, with red stems, very handsome, and will do in any soil. I saw, not long since, common rhubarb planted in a bed amongst those splendid rhododendrons and hollies near Rotten Row, in Hyde Park. They had a good effect; but I thought it a pity they had not planted Rheum emodi instead, for it is ten times more handsome than any rhubarb, and is not open to the reproach of being a kitchen plant. I once saw scarlet-runner beans planted to make a mass of red in a flowergarden. I granted they were beautiful at a distance; but I said such planting was not creditable, because when we discover its nature, we feel we have been cheated.

Papaver pulcherrimum and P. triumphale are huge species of poppy, with scarlet flower, the plants rising three feet high. Put them in a sunny border. They do not last long in full beauty; but

while they are good, they are glorious.

Ligularia gigantea.—This plant bears some resemblance to the Chinese coltsfoot, Farfugium grande, and is well adapted for a raised bank. It grows quite three feet high, and soon makes a great mass of most handsome leaves.

Heracleum giganteum is a gigantic hemlock, only fit for the shrubbery and retired parts of the grounds, but in a suitable place, especially near water, it is a grand and imposing object, presenting

its vast head of white flowers on a stem six feet high.

Elymus glauca.—This lovely grass is not at all understood; its beauty is distinct and delightful; the rather broad leaves arch over in every variety of graceful curve, and the colour is a glittering glaucous green. Its proper place is on a dry sandy bank, but it will grow in any soil and almost any position. I have lately visited a garden which is known to the readers of the Floral World, and seen this grass making a superb effect. One great tuft of it stands high up in a huge hollow tree, in the midst of brake and other ferns, in a rockery, and other plants are in pots on the lawn, placed in pairs alternately with pairs of Cedrus deodara, Cupressus Lawsoniana, Abies Douglassi, etc., and other conifers, which are also in pots. The Elymus contrasts finely with the bright green of the turf, and the rich dark and light of the coniferous trees.

Now I have named a few plants that no one who loves a garden should be without. They are all cheap, easily obtained, easily grown, will increase with time, will give dignity and splendour to any garden. My list of favourites is not exhausted, but I shall not

name any more at present.

GREENHOUSE AND HARDY ADIANTUMS.

N every garden now we meet with Adiantums; in the poor man's garden there is an attempt made to grow the lovely A. capillus veneris, the British maidenhair, which needs only shade, and moisture, and shelter from wind and frost, to attain to the most perfect luxuriance. In

gardens where collections of plants are grown under glass, and especially where exhibition subjects meet with attention, adiantums are sure to be plentiful. Very much might be said on this lovely family of ferns, but an endeavour will be made in this paper to compress a considerable amount of information in a comparatively small compass.

The Adiantums belong to the Pteris section of the filices, and are, as regards the nature of the indusium, congeners with Cheilanthes, Platyloma, Pteris, Lomaria, and Woodwardia. In all the species of Adiantum, the sori are disposed on the margin of the pinnæ, sometimes in a continuous line, but usually interrupted. The veins of the pinnæ are usually forked and radiating, the fronds are mostly smooth, and have a peculiar power of repelling moisture. The stipes and rachis are mostly purplish or black, very slender, and a peculiar family likeness prevails amongst the members of the genus, by which they may be readily recognized as adiantums, though it

may not be at all times easy to determine the species.

The cultivation of these ferns is, generally speaking, very simple, but there are exceptions. Some are difficult to keep through the winter, and some require peculiar care at all times. But there are certain peculiarities of constitution common to them all. They love shade and moisture, are soon injured, and even killed by sunshine, rough wind, or drought. Some few, such as tenerum, will submit to occasional hardships without suffering seriously. Yet the powers of endurance of this are circumscribed by narrow limits, and it never attains to its proper beauty except when sheltered, shaded, and kept constantly moist. There is no better soil for this class of ferns than good fibrous peat and silver sand, with more or less of broken stone added. It is best in every case to avoid the admixture with the compost of loam, leaf-mould, or other substitutes for peat, but sand may be largely used if free from lime and iron, and several of the species will grow luxuriantly amongst damp bricks or on damp stone without any other soil at all. This is especially the case with the British maidenhair, which really does better without soil than with it, though it may be grown to a fine condition in the usual mixture of peat and sand.

The adiantums do not generally root deep, and the pots employed for growing specimens are usually objectionably tall; shallow pans are far preferable to pots when it is intended to bestow particular care on a few specimens, with a view to grow them to a large size. Our exhibition specimens are grown in pots which have been made for the purpose, at my own suggestion, by Messrs. Adams, Brothers, of the Kilns, at Belle Isle, King's Cross, London. These pots are extra stout, made of the best clay, and very carefully burnt, and

they are quite neatly finished. The measurements are (inside) thirteen inches across and eight inches deep. They are pierced all over with small holes at bottom, with a few large holes at the sides close to the bottom. They are the very best pots for specimens not requiring a

great depth of soil, that I have hitherto seen.

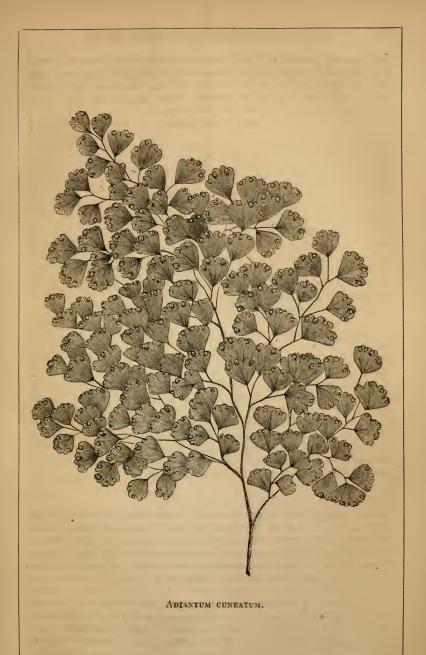
In producing specimens, the process adopted must depend upon the habit of the species. A. cuneatum makes one of the finest specimen plants ever seen; no wonder it is the general favourite for exhibition. Here we have a fern which grows from a compact crown, which from year to year increases in size. With such a growth, the only legitimate way of making a great specimen is to grow one on and on till the desired size is attained. It is no use to overpot them, for they grow no faster. The only safe way is to shift from size to size as the plant requires more room, always taking care never to give too much pot-room, and when it is in as large a pot as desired, it may remain in the same pot for many years without requiring fresh soil, and without declining in beauty.

I could point to several wondrous adiantums that have been going about at shows for the past seven years, winning everywhere, and that have had no kind of shift or change of soil in all that time. But if the growth of a specimen becomes poor, it must be turned out in the spring just before it starts into new growth, and the roots must be cut back, and much of the old soil must be shaken out, and it may then be repotted in the same pot with fresh compost, and will go on again very well for two or three years

longer.

In making specimens of such as A. formosum, which does not form a crown, but runs about hither and thither, it is quite legitimate to pot any number of pieces in a large pan, and make a specimen at once. A. pedatum may be treated in this way, and in fact the quickest method of making a large specimen would be to divide a plant into as many pieces as possible, and pot them in small pots, and put them in a warm moist house, and grow them thus one season. The next season a sufficient number of these may be put into a pan, and will thenceforth be effective for exhibition or decoration.

As to temperature, all the adiantums love warmth. Even capillus veneris, which is a true British fern, though nearly extinguished by the zeal of collectors and the destructive stupidity of people who are neither collectors nor cultivators, and who would tear the last scrap of this or any other rare fern from the last of its localities only to kill it by bad treatment, or to forget it an hour afterwards; even this hardy species will grow more freely in a cool, shady greenhouse than in the open air, and more freely in a damp stove than in a greenhouse. A dry heat or a strong light are very injurious, but warmth with moisture suits them all without exception, and every one may be well grown in a mean temperature 10 degrees higher than the lowest mean temperature in which it will live and thrive. Therefore the hardy kinds may be taken to the greenhouse, and the greenhouse kinds to the stove, and the stove kinds may be put in the hottest part of the stove, provided that in other respects they



are properly treated. I shall proceed to classify all the species I am acquainted with as to the lowest temperature they will bear without injury, adding a few notes that may be of use or interest, as the names suggest the necessity of remarks.

HARDY ADIANTUMS.

A. capillus veneris, the true maidenhair, is exquisitely beautiful, and it is always the ambition of the fern-grower to do justice to it. Nothing can be easier than the cultivation of this fern, provided it is in the enjoyment of shade, moisture, warmth, and a suitable soil. Those who possess the "Garden Oracle" for 1866, will find there the best code I can propose for its cultivation. It will grow freely amongst the bricks inside a warm well, and on the brick wall of a stove it will spread in a sheet of the loveliest verdure. In a cool greenhouse or a frame it may be kept in perfect health, if secured against sunshine and in a humid atmosphere. Many fail through soddening the roots with water; in truth, the roots must be comparatively dry, but the atmosphere must be moist, and care must be taken not to wet the fronds in cold weather. The best soil for it when grown in pots is one consisting of equal parts peat, sand, and broken freestone.

A. capillus veneris cuneatum.—This is a delicate variety, a plant of which I received last year from Mr. Sim. The pinnules have not the bold orbicular form of the original, but are narrow wedge-shaped, and of a pale green. It is very pretty, and more tender than the species. I have several varieties with large pinnules, collected on the Continent—notably a fine one from the Colosseum, in Rome—but they do not differ sufficiently to be named as varieties.

A. pedatum.—This is the best of all the adiantums for a beginner, as it will bear many degrees of frost without suffering, and has all the true grace of the family to which it belongs. If planted out in the open-air fernery, let it be in a position sheltered from wind and sun, and where stagnant water will not lodge.

GREENHOUSE ADIANTUMS.

A. assimile.—Many growers make mistakes in the identification of this fern. As A. cuneatum is well known, the form of the frond will give a key to the identification of this species, but the pinnules are rounder than those of cuneatum, and it has fast creeping stems, so that it never forms a close round tuft. It is very beautiful, and requires a rather warm house to do well. A. assimile and A. Æthiopicum are one and the same.

A. affine.—This also rises from creeping stems, and it most nearly resembles A. formosum—indeed, bears a very close resemblance to that species. Makes a fine specimen, and requires a warm greenhouse. This and assimile have been several times planted in the cool fern-house that was figured and described in the FLORAL WORLD for January, 1866, but they have never got through the winter well, and have generally been renewed in spring.

A. cuneatum.—This most delicate, yet most sumptuous fern may

be quickly distinguished from all others by its wedge-shaped pinnules. It grows fast, is nearly hardy; at all events, I have seen it frozen hard in seven degrees of frost, without suffering in the least. Slugs and wood-lice are intensely fond of it.

A. chiliense.—A very bold-habited species, with large, round, handsome pinnules of a brilliant light green. It is tolerably hardy,

and thrives in a cool house.

A. formosum.—Very distinct and fine, the stipes conspicuous by their dark colour, the fronds rich green, wide, triangular, each thrice-divided, and each division divided thrice again. Nearly hardy, not easily destroyed, even by several degrees of frost, or by much bad treatment. It makes a sumptuous specimen.

A. fulvum.—This grows in the style of formosum or affine; the young fronds are of a delicate pinky-white colour, then become dull red, and ultimately deep green. It is rather downy, grows

vigorously, and is comparatively hardy.

A. hispidulum.—Common, nearly hardy, graceful, much like the last, both in the colour of the young fronds, and the downy nature of the rachis and stipes.

A. tenellum.—This is a small, bluish green species, rather spare in habit, but distinct and pretty. It is sometimes (but wrongly)

labelled hispidulum.

- A. reniforme.—Undivided, kidney-shaped fronds of great beauty, especially when in fruit. It grows to perfection in a close case, and will do well in the greenhouse under a bell-glass. It has been reported on in these pages as a case fern, and has also been figured. We have a plant now which has been in an unheated case for years. The fronds are of the size of half-a-crown, and bear abundance of fruit.
- A. setulosum.—This has been described and figured in these pages. It is a perfect gem, especially to grow in a basket, or cocoanut husk. If there are orifices all over the receptacle, the plant will push through, and soon cover it with its light green three to five divided fronds. In some respects it may be called a small edition of affine.
- A. tinctum.—Light and elegant in habit, the divisions similar to assimile; or it may be called a large edition of capillus veneris. The young fronds are of a delicate rose colour, changing to dull purplish red, and afterwards to delicate green. As a case fern it is unsurpassed, and as a greenhouse fern is comparatively hardy, and a good grower. I have the original plant presented to me by Messrs. Veitch when the species was first introduced, and it is now a superb specimen.

ADIANTUMS ADAPTED FOR CASES.

Amongst the foregoing, the following are admirably adapted for closed cases:—Capillus veneris, assimile, affine, cuneatum, chiliense, formosum, fulvum, hispidulum, tenellum, reniforme, setulosum, tinetum.

The species that require the stove must be noticed next month.

HINTS ON PLANT-GROWING IN LIVING ROOMS.

BY GEORGE GORDON, ESQ., A.L.S.,

President of the Central Society of Horticulture.

ANY persons are either deterred from, or misled, in

growing plants in living rooms, by reading the lugubrious nonsense written about the danger of keeping plants in such situations after nightfall, or in perusing the mystified directions given from time to time for their cultivation under the head of "Window" or "Indoor Gardening." Such instructions, for the most part, consist of nostrums, secrets, and tricks, which are not only pernicious, but silly, and tend to puzzle and perplex the inexperienced, by creating a belief that there is much more art in growing plants in such situations than there really is. But as the former of such statements may with propriety be placed in the category of absurdities. so may the latter instructions be transferred to that of twaddle; for the principal cause why plants in living rooms do not thrive so well as those which are kept in plant structures, is chiefly owing to the extreme dryness of the air in sitting-rooms, and consequently their being subjected to a constant drain upon the moisture in their leaves and the soil in the pots—the leaves under such circumstances being deprived of their water by evaporation, instead of by per-

spiration; and in the exercise of their absorbent functions being more or less disarranged from a deficiency of moisture in the air, for

all plants are more or less dependent upon the vapour in the atmosphere as a source for their healthy development.

Much, however, depends also upon the suitableness of the plants selected for the purpose, and the regular attention bestowed upon them, especially during the winter months; for it is an unquestionable fact, that plants in sitting-rooms require greater care and attention, and suffer more from neglect during the dull months, from November to February, than at any other period of the year. Therefore, the first thing to do in cultivating plants in living rooms, is to determine what are the most suitable kinds for such a situation; and the more select they are, according to habit and culture, the easier will be their treatment. low and humble growth should always be kept in the front, and close to the glass, while the larger growing ones may be elevated behind; and in order to favour in the greatest degree possible the harmonious growth of the plants, and obtain a uniform development of the branches and leaves, the position should be capable of admitting light as much as possible on all sides; and the best and only general rule that can be adopted is to keep those plants not in a growing state rather dry, for plants kept in sitting-rooms generally are over-watered: and it is not an uncommon thing to see plants flourishing in the window of a dwelling under the care of an uninitiated individual, whilst those under the charge of others, in

adjoining houses, only linger out a miserable existence, and which frequently is occasioned by the plants being kept standing in pans, into which the water is poured when the plants are supposed to require watering; whereas, whenever water is given, it should be gently poured on the top of the earth in the pot. But as it is indispensable to have pans under the pots in sitting-rooms, small pans should be turned upside down within them, upon which to place the plants, and this precaution will prevent such water as may percolate through the soil from again reaching the pot in which the plant is growing; and all cultivators of window plants will find it by far the safest plan to give too little rather than too much water during the winter time, for the plants themselves will give notice when they are in much want of water by their leaves beginning to droop, while the effect of over-watering is oftentimes not discovered till the health of the plant has been seriously affected; therefore, attention to this point is one of the most important in window gardening. It is, however, impossible to say how often plants should be watered. or how much at a time should be given them, as the same plant would require more or less according to circumstances; that is, in regard to the temperature of the room, and the degree of activity with which the plant may happen to be growing at the time. It must also be observed that the temperature of the water used in watering the plants should be at least equal to that of the room, and when the plants begin to grow in the spring, increase the quantity with growth and sun's power, keeping the soil at all times in a medium state of moisture. Afterwards, when the plants are growing fast, a more copious supply of water should be given daily, and which, if possible, should be given either in the evening or first thing in the morning, but never during the middle of the day in hot dry weather, if it can be avoided. When autumn arrives. decrease the supply of moisture with the length of day and the returning torpidity of the plant, until the dry state for the winter is again reached: afterwards the plants will require but little moisture, but should occasionally, during the winter, have the surface of their leaves wiped gently over with a wet sponge, to remove any dust and keep the surface clean. Many cultivators are quite unconscious of the injury plants receive by a sudden change from that state in which they have been long kept to one of an opposite tendency—such as from drought to a bountiful supply of moisture, or from dark to light, such as placing plants out in the sun without their being first gradually inured to the light and air. Again, in winter, plants are frequently kept in too warm a part of the sittingroom, for they need not be removed from the window during frost, unless it be very severe, and then being placed on the floor near the middle of the room and covered with a piece of baize will suffice, as they will be safe where water placed beside them merely begins to freeze. Camellias, and similar hard-wooded and stiff-leaved plants, will even bear the soil in the pots being a little frozen, and frequently the cause of camellias losing their blossom-buds is from their being kept in too warm a part of the sitting-room in severe weather, and consequently in too dry an atmosphere. Finally, you must never let plants suffer from neglect. Many persons let them dwindle or die by forgetting to water them at the proper time, or shelter them from excessive sun-heat and frost. Again, without training and pruning, nothing is brought to the highest state of perfection to which it is capable, for cultivation is necessary in order to exhibit the good to which every earthly nature is susceptible. Therefore, stopping and training must be attended to during the growing season, as well as reporting in the spring.

ON INARCHING VINES.

BY JOHN F. M'ELROY.



VAST amount of information has, at various periods, emerged from the press on the culture and management of vines; but not a doubt can be entertained that the principal agency in the production and reproduction of their fruit is the means we have at our control for

maintaining a constant healthy root action. Among the means which have been adopted for imparting the needed vitality which modern science has suggested, that of enabling the cultivators to apply a temperature to the roots in proportion to that to which the leaves are subjected when forced, is, perhaps, the most useful. Modern improvements have given us every facility in the erection of forcing-houses, that the constructions may be so adapted as to supply the desired requirements; of course the skill and attention of the gardener must be combined with those resources to prove their value.

Though all these benefits may be available, if sought for, by proprietors of gardening establishments, still there are structures devoted to the culture of the vine which had their origin during the past century, and in which the gardener has to contend with many conflicting elements unfavourable to culture, as a low, dingy, damp house, and borders which from their situation are unavoidably exposed to wet and a chilly temperature at some portion of the year. To young gardeners I say, endeavour, when circumstances favour you, to rectify this state of things wherever it may exist.

This brings me to my subject, the "Inarching of Vines." It is not uncommon when vines are planted, especially on borders outside of the house, for some of the plants to take the precedence of others in growth; or it may be that you have vines that are flourishing satisfactorily, but that you are desirous of obtaining some of the more recently-introduced varieties, yet from your limited means you cannot afford to sacrifice those you have with the intention of planting fresh ones; then my advice is, inarch—a very simple operation to perform. Having procured a plant growing in a pot, with a good ripe rod, place the pot underneath the part on which you are about to operate, then take a sharp knife and cut away a thin portion of wood from each of their stems; let it be done so

that each part will adhere as closely as possible; then bind them with bass, after which paste some moist clay on in the same way you would a graft; over this place a layer of moss, tying it gently on; the latter keeps the whole moist by the aid of the syringe. The plant in the pot must not suffer for want of water. It may be that weeks may elapse before they afford signs of beginning to unite; when they do, by degrees, but carefully, sever the parts; let an interval of a fortnight occur, or more, between that and the final separation from the parent plant. If you observe it suffers from the first attempt, do not hasten the process. I would not recommend the removal of the clay and moss till the autumn, as, during the hot months of the summer, it assists the progress of the adhesion of the parts.

This leads me to remark that, where vines are to be planted on borders outside of the house, we might select such robust and vigorous growers as the White Tokay, and afterwards, when they are established, inarch them with choicer varieties. Some time since I planted some vines; among them was one of the latter variety; its growth far outstripped the others, so I decided on inarching as detailed above; the result is, that I have four good rods that have borne a profitable crop, and the vigour of the plant is not in the least degenerated; as, independent of the said number of rods, I still retain one of the original, and also have one of Muscat Hambro'

which was inarched this time last year.

NEW ROSES OF THIS AND LAST YEAR.

BY W. D. PRIOR.



NTIMATIONS from various quarters have reached me that some information respecting the new roses for the current season would not be unacceptable to the roseloving public, particularly as the time for constructing or refurnishing roseries by means of plants out of pots

is at hand. This method of remedying the destruction of winter will this season, unfortunately, be in general demand, owing to the wholesale ravages occasioned by the unexpected second and even third visitation of frost and snow. As far as my own observation extends, such an amount of havoc amongst roses has not occurred since that fatal Christmas of 1860-61—perhaps not even then. With respect to my own small collection, after having congratulated myself upon the little injury left by the hyperborean blasts, even upon slightly-protected Teas, I find now almost every plant cruelly cut up, and many entirely destroyed. From information received from other roseries, there is reason to believe this disastrous state of things is widely diffused; so that sufferers must either be at the expense of renovating their roseries by means of pot plants, or go without the usual supply of their favourite blossoms till another year.

This demand, however, for pot plants, will have two favourable

phases: in the one case it will furnish a deservedly good turn to the importers and propagators of foreign roses, through whose enterprise we obtain the valuable acquisitions we from time to time possess; in the other, the really new roses of this and the last season will be brought more rapidly and widely under trial, and thus the good selected and the bad rejected in an unusually short period of time.

Opinions upon untested roses must be offered and received with considerable qualification. The capriciousness of the flower under various conditions is such, and the area of observation of new varieties is so circumscribed among plants usually produced by grafting in a few weeks, even the old plants if potted up being in a state of transition from the climate of France to our own, that a prediction of what they will ultimately turn out, is as hazardous an attempt as that of prophesying the winner of the Derby or St. Leger. It may nevertheless be safely pronounced that there are some valuable introductions amongst the novelties for 1866-67; and that the previous season deserves to rank with the memorable era in the Rose calendar of 1862, from the number of fine varieties brought into our gardens. Alfred Colomb (Lacharme), in its line, is worthy to rank beside Charles Lefevre, being one of the noblest specimens of the deep, globular, high-coloured flower, typified by Senateur Vaisse and Madame Victor Verdier, that has yet been produced.

In selecting untried roses we must be guided, to some extent, by the character of the raisers, and among those who have exported novelties for 1867, Margottin's (a good raiser) does not appear. Lacharme, again, who has sent us some of the finest we know, Alfred Colomb and Madame V. Verdier among others, has only Thorin, which I have not yet seen in bloom, but which ought to be speculated upon, on account of the reputation of its originator.

Alba Carnea (Touvais).—Very light; should form part of any selection of varieties for the year, on account of its colour. We cannot encourage enterprise too much in this direction, as there are fewer white or tinted roses of merit than in any other section of colours.

Antonie Ducher (Ducher).—Descended from Madame Domage;

ought to be valuable if it resembles its parent.

Charles Verdier (Guillot père).—Again as promising, being sent out by a good raiser, and the seedling of that fine variety, Victor Verdier.

The following, in addition, are those which appear to be most worthy of attention:—Horace Vernet (Guillot fils), Madame Rival (Gonod), Madame la Baronne Hausman, Madlle. Annie Wood, Madlle. Eleanor Grier, Napoleon III. (all sent out by E. Verdier). Monsieur Noman (Guillot père), seedling from Jules Margottin. When we call to mind that John Hopper, and Mr. Ward's other fine roses, are from this excellent parent, and also, if I mistake not, Mr. W. Paul's admirable rose, Beauty of Waltham, it may reasonably be expected to turn out one of the best.

Paul Verdier (C. Verdier, a first-rate raiser) must not be passed by. There are two striped roses, Eillet Flamand, and Panache

du Luxembourg. These striped varieties are very pretty when they come true, but being themselves merely sports, they are apt to return to their types; a very striking instance of this is given in an old rose, Madame Campbell, from La Reine; both flowers may frequently be seen side by side on the same bush. Cambaceres also has given birth to a sport, Belle du Printemps, which, unfortunately, seldom comes true. Anne Alexieff, and more than one other kind besides, have a constant tendency to exhibit abnormal flakes and stripes; and I once saw a prodigious bloom of Clemens Joigneaux, with large flakes of white resembling a camellia; could that sport have been secured, it would have been one of the most curious and interesting flowers ever seen.

Madame Margottin (Guillot fils), is a pale, yellow Tea, fuller than new teas usually are, and will prove most likely an acquisition; it may be noted that fewer new roses of merit are produced in this section than in any other. Laffay has also a new rose in this class, Monsieur Furtado. Anything from Laffay, to whom rosarians are indebted mainly for the popular and beautiful Hybrid Perpetuals, deserves a liberal trial. From the description I should imagine it

to have considerable affinity with certain of the Noisettes.

Mr. Ward, of Ipswich, of "John Hopper" celebrity, has two new roses: Mrs. Ward, from "Jules" and Chabrilland, with the shape of the latter and colour of the former (what a superb combination!); and Mrs. John Berners, which ought, if truly described, to attain a first-rate position; also a pillar rose, Ipswich Gem.

The roses of that distinguished authority, Mr. William Paul (who has done so much for the flower), may all be safely included in any collection. The more recent, Dr. Lindley, Globosa, Lady Suffield, and Cœur de Lion, appear equal in merit to the celebrated Beauty of Waltham, one of the finest of modern varieties. The foliage, in particular, of Dr. Lindley is magnificent; Globosa is incurved almost like a ball; Cœur de Lion was finely shown at the International.

It is unfortunate that the splendid Golden Maréchal Niel has not proved itself sufficiently hardy to withstand such a winter as this last, without protection. This must be accepted as the general verdict, whatever may be asserted as to isolated cases. This rose will be scarce. Nurserymen, from its great demand, generally cleared out their stocks at an early period, a fortunate circumstance for them; unlucky purchasers will have generally lost their plants, and will require a fresh supply, for which we shall be chiefly dependent upon France.

Of last season's roses, which have undergone a certain amount of trial, and with respect to hardiness of constitution no slight one, the

following thirteen may be considered the most eligible:

Alfred Colomb.—As already stated, one of the finest varieties we have among the high colours.

Charles Rouillard.—Pale rose, globular, somewhat after Louise

Peyronny; very strong, and rather upright in growth.

Comte Alphonse de Serenye. — A "Jules Margottin" sort of variety.

Comtesse de Palikao.—An acquisition in the light tone of colours. Gloire de Ducher.—Rather dull, perhaps.

Josephine Beauharnais.—Another addition to the light roses, in

which fine and hardy varieties are scarce.

Jean Lambert.—In the Duc de Rohan style; buds egg-shaped. Perhaps this variety will turn out hard to open.

Madame Fillion.—Fine salmon rose; an old-fashioned colour, of which we have had too few lately—a sort of "cabbage" rose.

Madlle. M. Dombrain.—Another fine light kind.

President Mas .- Fine dark.

Prince de Porcia.—In the Senateur Vaisse line, promising firstrate excellence.

L'Exposition de Brie.—Brilliant colour.

Hyppolite Flandrin.—Another somewhat after L. Peyronny.

The above will probably displace many varieties of repute now in the select catalogues, and occupy a prominent position for some time to come; though the number of kinds annually dropped from cultivation would astonish the uninitiated: a rose must prove itself acceptable, or go, like other things in this "express" age.

The following is, perhaps, the best list of roses, as known at the

present time, selected from old and new, up to last year :-

Hybrid Perpetuals. - Achille Gonod, Alfred Colomb, Alpaide Rotalier, Baronne Prevost, Beauty of Waltham (W. Paul), Caroline de Sansal, Centifolia Rosea, Charles Lefevre, Charles Rouillard, Comte de Nanteuil, Comtesse de Chabrilland, Comtesse de Palikao, Dr. Lindley (Wm. Paul), Duchesse d'Orleans, Elizabeth Vigneron (Wm. Paul), Exposition de Brie, Gabriel de Peyronny, General Jacqueminot, Globosa (Wm. Paul), Gloire de Vitry, Hyppolite Flandrin, Jean Goujon, Jean Lambert, John Hopper, Josephine Beauharnais, Jules Margottin, King's Acre, La Duchesse de Morny, La Ville de St. Denis, Lælia, or L. Peyronny, Le Rhone, Maurice Bernardin, Madame C. Wood, Madame C. Joigneaux, Madame Domage, Madame Knorr, Madame de Cambaceres, Madame Fillion, Madame E. Vilmorin, Madame Moreau, Madame Roussett, Madame Rivers, Madame Victor Verdier, Madame Vidot, Madlle. Marie Rady, Madlle. Marguerite Dombrain, Marcella, Marguerite de St. Amand, Olivier Delhomme, Pierre Notting, President Mas, Prince C. de Rohan, Prince de Porcia, Princess of Wales (Wm. Paul), Senateur Vaisse, Sœur des Anges, Viscount Vigier, Victor Verdier, Wm. Rollisson, Xavier Olibo.

Bourbon Perpetuals.—Baron Gonella, Catherine Guillot, Emo-

tion, Rev. H. Dombrain.

Bourbons.—Paxton, Malmaison.

Noisette Perpetuals.—Madame Alfred de Rougemont, Louise Darzins, Pavillon de Pregny.

Noisettes. - America, Celine Forestier, Cloth of Gold, Jaune

Desprez, Lamarque, Maréchal Niel, Triomphe de Rennes.

Teas.—Alba Rosea, Devoniensis and its climbing sport, Gloire de Dijon, Madame Falcot, Madame Bravy, or its synonyme, Madame Sertot, Madame Margottin, Madame Willermoz, Niphetos, President, Souvenir d'Elise, Souvenir d'un Ami, Triomphe de Guillot Fils.

This enumeration is given without reference to hardiness, or adaptability for soils and situations, but only as to absolute perfection in the various colours and styles of flower. There is, perhaps, not a second-rate rose among them all. The catalogues will supply details for those who wish to make a selection. The information given in this paper may be considered tolerably reliable, having been obtained by observation and criticism, in company with those eminent rosarians, Mr. John Fraser and Mr. Wm. Paul, at their respective nurseries. On such occasions, every flower undergoes a rigid examination and discussion, which precludes the escape of much defect. A rose must be a good one indeed to satisfy such "exigeant"

censorship.

Those who intend to avail themselves of the opportunity of employing "pot roses" had better lose no time in obtaining them. The best kind of plants will be those strong plants, on the Manetti (they cannot be obtained easily of suitable size on their own roots), in six or eight-inch pots, which are annually potted up in November at the great nurseries, for the purpose of early greenhouse culture. or to fill up summer vacancies. Bear in mind that the soil in which these are turned out should be free and rich, and that it is cheaper in the end to have one fine plant than two or three small ones, although the first cost per plant may appear greater. The water-pot, with occasional liquid manure, must not be spared. By the above plan, an abundant supply of roses may yet be obtained before autumn comes on, with a goodly stock of fine, well-established bushes for the next season.

CULTIVATION OF THE FUCHSIA.

BY G. WYNESS,

Gardener to Her Majesty at Buckingham Palace.

HE Fuchsia belongs to the eighth class and first order of Linnæus; natural order, Onagraceæ—a very well-defined order, generally known by its pollen cohering by a sort of filamentous substance, an inferior polyspermous ovarium, a tetracephalous tetrapetalous flower, with a

definite number of stamens and single style. As far as we know, the Fuchsia Coccinea was the first that was introduced to this country from Chili in 1788; Lycioides was the next from the same country in 1796; Gracilis in 1823; and the pretty little Fuchsia Microphylla from Mexico in 1828. Subsequently a number of distinct species have been introduced, such as Fulgens, Corymbiflora, Serratifolia, and Spectabilis, and so on, all of which have been eclipsed by the beautiful varieties of the present time. There is a class of double fuchsias that are now patronized by many people, but all I can say of the double sorts is that I do not admire them,

for they always seem to me to be a mass of confusion, and put me in mind of those mops we see the coachmen cleaning their carriages with; but every one admires the object of his own affection—one man admires what another despises, it being natural for the judgment to favour the inclination in fixing the character on such as we admire or despise, and to call that wisdom which in another man's

mind passes for folly. But I think we may safely presume that the fuchsia is a universal favourite, and deservedly so, for there are very few plants that come under the care of the floriculturist that are possessed of so many useful properties for the decoration of the conservatory, the greenhouse, the flower garden, or the cottager's window. If we take into consideration the graceful habit of the plant, the abundance of its lovely blossoms, the charming variety of colours, and the length of time it continues in bloom, there are very few plants that are more worthy of general favour. In the propagation of the fuchsia, or any other plant, we observe that the buds of plants have the power of developing roots if removed from the parent, and may thus form a completely independent structure. It is by separating the buds, and placing them in circumstances favourable to their growth, that any particular variety of plant may be propagated more certainly than by seeds. The limits which have been set by the Creator to the duration of the life of each being that exists at any one time on the surface of the globe, would cause the earth to be speedily unpeopled were not a compensation provided in the faculty of reproduction, or of the formation of a new being similar to itself possessed by every kind of plant. This power of creating, as it were, a living structure, with all its wondrous mechanism. seems more extraordinary and mysterious than any which we elsewhere witness; yet it is not so perhaps in reality. The processes which are constantly taking place during the life of each being, and which are necessary to the maintenance of its own existence, are no less wonderful and no less removed from anything we witness in the world of dead matter. When the tree unfolds its leaves with the returning warmth of spring, there is as much to interest and astonish in the beautiful structure and important uses of these parts as there is in the expansion of its more gay and variegated blossoms; and when it puts forth new buds, which by their extension prolong its branches over a part of the ground previously unshaded by its foliage, the process is in itself as wonderful as the formation of the seed that is to propagate its race in some distant spot.

The best time to propagate the fuchsia from cuttings, for growing fine specimens the following season, is from the middle to the end of August; and always select a young healthy shoot for the cutting. Avoid the points of shoots from a flowering plant, for they will not make such fine plants as a young healthy shoot without flower-buds upon it. The best way that I know of is, to select a plant of each sort we intend to cultivate, and plant them out about the middle of May, in a well-prepared soil in a shaded situation; and, by attention in giving them water when they require it, and pinching out the points of the shoots to prevent them from

blooming, they will furnish a capital supply of fine healthy cuttings. You will observe that the fuchsia generally produces a pair of leaves at the node, and a shoot from the base of each leaf; but sometimes a vigorous plant will produce three leaves and three shoots at the node, and when these can be obtained, they will always form the most symmetrical plants; for, if judiciously managed, they will maintain the same habit during the season's growth. The best material for striking the cuttings in is equal parts of leaf-mould and silver sand—a composition that almost any plant will readily strike roots in. We strike our cuttings in small thumb-pots, one cutting in each pot, as they are better to manage in this way than striking a number of cuttings in one pot; for, let us be ever so careful in separating a pot of cuttings, we are almost sure to damage some of their roots, which must retard the progress of the plant until it can repair the loss by forming new roots. Now, these fibres and their succulent extremities, which are called spongioles, are the parts by which alone they absorb or suck up fluid. The fact is, that this absorption takes place with the greatest rapidity through soft, newlyforming tissue, and is what gives the spongioles their peculiar power. They are, in fact, the growing points of the rootlets, which are constantly increasing in length, and which, in this manner, go in search, as it were, of the supplies of food of which they have exhausted the soil that previously covered their extremities.

If the cuttings are put in at the time mentioned, and watered over the foliage with a fine rose watering-pot, and placed in a close pit or frame, and shaded from bright sunshine, they will strike root readily without artificial heat. As soon as they begin to grow, give a little air to keep the plants healthy, and from being drawn up weakly.

As soon as the young plants are well established in their pots, they should be removed to a more airy situation, to harden them for the winter. About the beginning of October they should be shifted from the small thumb-pot to a sixty-sized pot, which will be sufficient to carry them through the winter, as the less growth they make during that season the better for the future plant. A soil composed of turfy peat, leaf-mould, and silver sand, equal parts, is the best for winter potting; for, being light and porous, it allows the water to pass off freely. The time for starting the plants into growth will depend entirely on circumstances. Those who require to have their plants early in bloom should place them in artificial heat in the month of January. A temperature of 45° to 50° will be sufficient to begin with, and increase the heat as the season advances. Where there is not accommodation for beginning so early, the plants will be better at rest till the end of February or beginning of March, for if the plants are started into growth too early, and then get a check, they will never do so well afterwards.

When the plants have made fresh roots, and begin to grow, allow the soil in the pot to get nearly dry, then turn them out of their pots, and shake as much of the old mould from them as can be done conveniently without damaging the roots, and repot them into well-drained clean pots, in a mixture of turfy loam, turfy peat, and leaf-mould, equal parts, and add some sand to keep the soil

open for the free passage of water, as no plant will do well where stagnant water is lodged about its roots. Water the plants over the foliage with a fine rose-pot, and place them in a close frame as near to the glass as convenient, and, as soon as they have taken to the new soil, and begin to grow, give air whenever the weather will permit, which is necessary to keep the plants healthy. If the plants go on well, they will require shifting into larger pots about once in five or six weeks, till they are showing bloom. During the summer the plants should be shaded from bright sunshine, for the sun soon spoils the colours of the flowers, and will sometimes scorch the

foliage of the tender varieties.

In warm weather syringe over the foliage morning and evening, as the fuchsia delights in a humid atmosphere, and, by using the syringe freely it keeps the plants clean and healthy, and free from the attacks of insects. In fact, if the fuchsia is properly managed, it is seldom infested with any kind of insect; but the green fly, which has a taste for almost every kind of plant when in a young state, will sometimes attack the fuchsia, and will very soon disfigure the plant if not attended to immediately. A dose of tobacco smoke in the evening, and syringing well next morning, will clear the plants of that pest. I have tried Neal's pastilles, and other remedies, but have found nothing to answer so well for fumigating plants as tobacco paper.

Any one who proposes training the fuchsia may expect to hear a good deal of nonsense about suffering the plant to grow as nature meant it to grow. Nature never meant anything; but the Author of nature has imposed training and discipline as a duty. When the Creator first placed man in the garden, he gave the command to keep and dress it, and placed a reasoning faculty within him, and gave him permission to adapt the works of nature to his own wants and uses. No plant is ever brought to the highest state of perfection it is capable of without restraint and pruning, and direction

from a fostering hand.

The training of the fuchsia is perhaps as simple as any plant we grow, for one support to the principal stem is quite sufficient, and to pinch out the points of the side-shoots as they advance in growth, to cause the plant to grow bushy, is all that is required.

Some people recommend giving liquid manure to the fuchsia, but I think if they are grown in the proper material, and regularly watered with rain or soft water, the decomposing vegetable matter

contained in the soil is all that is necessary for their wants.

No doubt we may produce prodigies of development by the agency of stimulating manures, but we should remember that one of the first laws of organic life is, that in order to secure its healthy function, every organ must be exercised. Lengthened repose is fatal to its tone, and excessive exertion or irritative action will result in diminished power or feebleness, placing the plant in a state unequal to its due measure of physiological action. Surely, then, it can only require a limited degree of intelligence to perceive that a regular and moderate supply of nourishment will increase the aptitude of every organ to perform its peculiar function.

A CHAPTER FOR THE LADIES ON GATHERING AND ARRANGING FLOWERS.

HE reason that people so often fail in arranging flowers is, that they put all the brilliancy together, and perhaps relieve it but slightly, or not at all, with that verdure which abounds everywhere in nature where flowers most charm us. Many persons go into a garden, and, gathering a lot of flowers, stick them closely into a vase of some kind, nearly as close, perhaps, as a broom is tied up. This results from their not seeing the reason why

prettily marked flowers please us when set, so to speak, in wide spreads of rich verdure. The result of such a jumble is, that the product is about as attractive to the tasteful eye as a garden all yellow and red; and what should be the sweetest thing in the house is painful to look at compared to a flower and spray depicted on the vase which contains it, or perhaps on the wall of the room. As a rule it may be said that, by using a sufficiency of green, we could get rid of much of this awkward. ness, and though it may not enable people to arrange flowers really well, yet a great advance is made when we recognize the value of green. If you see a person who is about to arrange a vase of roses bring in a handful or two of the freshest and finest rose-leaves in the garden, you may be pretty sure that the roses will not look amiss when he or she has done with them. When arranging a dish of roses with short stems, we always begin by putting a circle of large and fine leaves around the edge (fern fronds are better), so that their points droop over; and by putting a profusion of them through the blooms, an infinitely better effect may be produced with half, or even quarter the number of blooms, than when they are "lumped in." But it is not enough to avoid what we will call lumping: it is desirable to give each flower its own place, so to speak. This is to some extent a mechanical operation, as in vases generally there is no resisting medium on which to place the flowers. You cannot arrange them rightly without some little contrivance. For a flattish vase or dish, the best thing we know of is silver, or any other fine sand, in a very moist, though not actually in a sloppy state. This forms a capital planting medium, so to speak, and at the same time keeps the flowers fresh-at least, as much so as water does. By filling the dish or vase with sand, full or thereabouts, and then when moist rounding it up a little in the middle, you have as good a preparation for the reception of flowers as can be made. Insert the flower-stems in it to the required depth, first having pointed them and stripped them of the lower leaves; and as the height of each bloom is of some moment, they may often require to be shortened, which should be done with a sharp knife in a slanting direction, and that will assist By doing this you have the disposition them in penetrating the sand with facility. of your flowers quite under command. If they be of a trailing or decumbent habit, it will be necessary to sink them nearly to the necks; and if they be of an erect or stiffish habit, like geranium or sweet-pea blossoms, they may be left as long as may be desired or convenient. Flowers, green leaves, graceful grasses, or any other If a coat of the common Lycopodium addenda, may be thus placed at discretion. be placed over the sand, so much the better; it would act as a capital resting-place for the flowers, and do away with the necessity of using a good deal of small stuff to fill up the interstices. Indeed, a lot of long moss or spray of twigs cut to a level top and plunged in a narrow vase has often been successfully used instead of sand. Then again, where the receptacle for flowers is very shallow, like the lower tray of some ornaments for table decoration, a little sand is all that is necessary; but it should be borne in mind that such trays are suitable chiefly for flowers that may be cut short, and for little bunches of forget-me-not, Lycopodium, and things which will form erect and somewhat compact little tufts, with short fern-spray, etc. Sometimes rather close little wire coverings are used for dishes and vases, and these certainly support the flowers well, and do away with the slightest necessity for crowding, but yet are inferior to the soft moist masses of sand. It has just occurred to us that by growing the common Lycopodium in dishes till it attained luxuriance, and then bringing them into the house, they would form capital cushions on which to place a few choice flowers. Indeed, we have no doubt of it. By filling the dish with very fine sandy peat, passed through a fine sieve, and rounding the centre considerably up, pricking the common Lycopod over the surface, and placing the vases in a warm vinery, fernery, or moist and rather warm structure of any sort, in a month or two they will become masses of green, and droop over the margin of the dish. It may be propagated thus to any amount, as every bit grows as freely as grass. Half a

dozen really good flowers inserted in this—and the pointed stems would pass as readily into it as into the sand—would afford a charming effect; and with a few bits of graceful ferns to counteract the lumpy appearance of the moss, it could not fail to be admired. The Lycopod would look well for a long time, and when it faded or became dusty, others could be introduced from the stock so readily propagated. The dishes should have a hole in the bottom for the water to escape into an outer case. Of course this is quite inapplicable to costly, tall, or elegant narrow vases, but it would suit to a nicety low dishes for roses or any other flowers; and such are the most useful for general purposes, as by their judicious use you see the beauty of the flowers, and that alone—which is generally a gain. For the tall vases we have often used sand; but where they are too fragile or expensive to risk breakage by filling them with heavy material, it is better to cut a bunch of some kind of spray—say box, yew, or any small-leaved plant—and trimming it off, put it in the vase, so that its top is about level with that of the vase, and on that surface the flowers may be inserted thinly and firmly as you please, and the necessity of making a tight

bundle of flowers is done away with.

From the above it will be seen that we have a horror of the bundling system. Every flower should stand distinct in the arrangement, and it is also very desirable to avoid the crowding in of too many colours into the one vase or dish. A few simple flowers, carefully selected from the woods or ditches—say the hawthorn, the forget-me-not, the wild grasses, the meadow sweet, the marsh marigold, etc.,-a select few, observe, not too many kinds, and well arranged-will produce a better effect than all the flowers and colours of the garden lumped together. Quiet sweet things, like mignonette, may be used in abundance as a sort of groundwork for the display of brighter flowers; and why not bunches of it for insertion into the necks of vases as well as the evergreen spray we named above? Decided colours should generally be grouped distinct from those of a quiet tone; but so varied are the forms and colours of the flowers of our gardens, that it would be folly to be tied by any rule except this: Place the blooms thinly, and in the midst of refreshing verdure, as Nature does; the brighter the colour, the more green should, as a rule, be employed. The procuring, or rather the selecting, of this green is an important point. Ferns of many kinds are valuable, but many other plants are equally so. Of the ferns, the apex of the fronds of the common male fern are highly suited for dressing the margins of large vases, dishes, etc.; while for more delicate work there are innumerable kinds in the way of the maidenhair, and, in fact, every elegant fern may be used. Where there is much decoration of this kind to be done, it is well to grow a few of the most suitable kinds in some quantity for cutting at all seasons; but, generally, the spray of the more elegant conifers, such as Cupresses nootkænsis and others, the Arbor-vitæs, the neat and pretty new Retinosporas, and, in fact, many things in this way will be found most valuable. They last much longer, are to be had in a fresh and green state at all seasons, and often furnish quite as graceful an effect as the ferns. Some of the better Lycopodiums, too, or Selaginellas, as they are called, are among the very best things that can be used, and in a warm place grow as freely as weeds. Finally, the selecting of the flowers and the cutting of them is worth a thought. The right way to do it is to gather a few suitable kinds in distinct little bundles-whether fern, foliage, or flowers-and then, when placed on a table, the arranger has simply to take the flower or frond he wants - a thing not easy when all are gathered in a promiscuous bundle. Another word, fail not to use the Fuchsia and other pendulous flowers for drooping over the margins of all but the lowest dishes, if you want to produce a charming effect.

Since writing the above we have seen large, very large vases, and very expensive too (6000 and 7000 francs apiece), in Paris houses, filled tastefully with flowers—a capital medium for the insertion of the stem being found in rich flakes of deep moss, a layer well moistened being put in the bottom of the vase, and over that another layer with only its natural moisture. The flakes of thick moss are placed in just as they grow, and thus the flower stems pass down into them with the greatest ease. It must, however, not be supposed from this hint that the French always arrange flowers well; they do rooms, etc., for festive occasions charmingly, but bouquets are far more tastefully and beautifully done in Covent Garden. The other day a French countess presented to Mdlle. Patti a bouquet about the size of a sponging bath; if any lady took it about with her it must be in a refined sort of wheelbarrow; and many of the best bouquets to be bought in Paris display no taste or knowledge of

arranging flowers .- The Field.

NEW PLANTS.



OMPHIA THEOPHRASTA, Theophrasta-like Gomphia (Bot. Mag. t. 5642).—Ochnaceæ. A small stove shrub from South America. leaves are oblong-lanceolate, a foot long and three inches broad, recurved, acutely serrated. The flowers are one-third of an inch in diameter, in clusters of two to five ; golden yellow.

EPIDENDRUM EBURNEUM, Ivory Flowered Epidendrum (Bot. Mag. t. 5643).— Orchideæ. A handsome stove orchid, from Panama. It is of fine distinct habit, stems one to two feet high; leaves alternate and dark green; flowers consisting of narrow citron-coloured sepals and petals, and a broad shield-shaped lip of ivory whiteness.

MYRTUS CHEKEN, Chequen of Chili (Bot. Mag. t. 5644).—Myrtaceæ. A pretty evergreen Chilian shrub, closely allied to Eugenia Luma. It is densely leafy, and flowers abundantly, the flowers being white and fragrant. Suitable for the green house, or a warm wall in the west of England.

CELOGYNE LAGENARIA, Flagon-bulbed Calogyne (L'Illust. Hort. t. 510) .-Orchidæ. This beautiful and interesting orchid is found in elevated regions of the Himalaya and Nepaul, and it comes into the category of what are called "cool orchids." The pseudo-bulb is a remarkable object, and has been variously likened to a flagon, a bottle, and a gourd; the flowers are produced immediately upon the pseudo-bulb, and are at once handsome and curious. The sepals and petals are nearly equal in size. Their colour a soft lavender, or dove; the lip is projected in a pouched form, somewhat resembling the flower of a gloxinia; it is white on the outside, with bold bars of deep red on the reverted limb, and within bright yellow.

Thunbergia Fragrans, Fragrant-flowered Thunbergia (L'Illust. Hort. t. 511). —A superb stove climber, from India, lately introduced to public notice by Mr. B. S. Williams. The leaves are elegantly ovate, and obscurely lobed; the colour a rich dark green; the flowers are nearly two inches in diameter, pure white with yellow centre, deliciously fragrant.

AZALEA, INDICA FRANCOIS DEVOS (L'Illust. Hort. t. 512).—A semi-double variety of fine character. The flowers are of great size, finely formed; the colour

intense deep red, with shades of lake and vermilion.

ULLMUS CAMPESTRIS VAR. AUREA, Golden-leaved Elm (L'Illust. Hort. t. 513).— A beautiful hardy tree, with richly variegated leaves, the prevailing colour being gold yellow, deepening to orange and red.

CATTLEYA QUADRICOLOR, Four-coloured Cattleya (L'Illust. Hort. t. 514) .- A good figure of this superb New Granada species, which has already had a place in

MARANTA ILLUSTRIS, Splendid maranta (L'Illust. Hort. t. 515).—Marantaceæ. This is a beautiful species, the large, roundish, ovate leaves being richly barred with two or three shades of green, and marked with a zigzag zone of white, pale pink, and blue.

GARDEN GUIDE FOR JUNE.

Kitchen Garden.—The month of May has done but little to help the kitchen garden through its difficulties, for the intense heat which characterized the early part of the month was followed by intense cold, and every kind of vegetation suffered, more especially tender seedling plants of broccolis, onions, etc. The warm rains which commenced on the 26th have been eminently beneficial, and we may say with assurance now that things are growing. Spinach is one of the most important of vegetables this season, for so many things having been destroyed, that which could be depended on for a quick return has had great favour shown it. The common round-seeded spinach is the quickest of all. The perpetual spinach beet is a good vegetable to sow on hot soils, where common spinach runs quickly to seed,

and if sown now will be useful at the end of July, and thence to September; only a few leaves at a time must be taken from each plant. Sow a few more lettuces on heavily manured ground, and do not transplant them; sow thin. Stir the ground by flat hoeing between potatoes, and draw a little of the rongh crumbs to their stems; but do not mould them up, as is usually done, for the operation only tends to remove the tubers further from the influence of sunshine than is good for them. If vegetable marrow plants are not to be obtained, sow seed on a well-manured bed, in patches of three seeds each, five feet apart, and you will have plenty of marrows before the 1st of August. Make a plantation of the forwardest winter greens, and at every opportunity plant out from seed beds. Weeds grow luxuriantly, and if

allowed to riot, will ruin any crop. Flower Garden.—All the more tender kinds of sub-tropical and other bedding plants may now be planted out, the majority of such things delight in shady positions and a rich mellow soil. All kinds of plants may now be propagated with facility by putting cuttings in pots and shutting them up close in frames, or even placing them under the stage in the greenhouse. Cuttings of geraniums put in a sunny border will make nice plants this season, and will be quite gay in August and September. This is the best time to propagate pinks, carnations, and picotees by pipings. They must be put in a shady place. Valuable sorts should be put in pots, and placed on a gentle bottom heat in a frame. This is the best time in the whole year to begin the cultivation of hardy herbaceous plants from seed, as there is ample time for the plants to become strong for the winter. Asters are largely used to make a succession to stocks and other subjects that cease to be beautiful before the summer is over. The simplest way of dealing with asters now is to plant them where they are to remain. If the border intended for them is much infested with vermin, plant out a few lettuces from a seed-pan at the same time. every case in planting asters, dahlias, hollyhocks, and other subjects that snails and woodlice are fond of, it is a good plan to plant lettuces at the same time, as the vermin will go to the lettuces first, and while eating them, the more valuable subjects will grow out of the succulent condition in which they are most relished by vermin. Put stakes to whatever is likely to require it at the first opportunity, for we never know when a gale may rise and make ruin of all our garden labours, if we have not provided in time against such a contingency.

Fruit Garden.—Pinching the shoots of apple, pear, and plum trees may still be pursued with ardour; small trees laden with large crops must be relieved by thinning. Give potted trees abundance of water. In gathering gooseberries take some from each tree, so that there will only be a few on each left to ripen. Those few will attain a large size, and have a fine flavour; and if there are many trees to gather from, the dessert will be well supplied. But if the entire crop is left on any tree to ripen, the berries will be all small and comparatively flavourless. This is a

hint worth the attention of lovers of ripe gooseberries.

Greenhouse.—Put as many subjects in the open air as possible; it is astonishing how much better many greenhouse plants look after a month or two in the open-air in summer time. Plants in bloom in the house last longer if cool and shaded. All plants that bloomed early and have been cut back should be allowed to make shoots a quarter of an inch long before they are repotted, but they should be repotted at that stage. A few good ferns, palms, balsams, and zonale geraniums are of great value now to make the conservatory agreeable; indeed, the zonale geraniums are pre-eminently valuable for this purpose.

** Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale this year.

NEWS OF THE MONTH.

THE PARIS EXHIBITION is now in a very complete state, and the lovers of horticulture will find plenty to admire, and perhaps much from which instruction may be derived, in the Parc and the Central Garden. To say nothing of the model villages, the imitation rockeries, waterfalls, and mountains, the collections of trees, succulent plants, and other specialities, are worthy of the fullest attention and the

loudest praise. The collection of coniferous trees is not only superb for number and variety, but it would be a most difficult matter to match them in quality. The highest place in order of merit has been assigned to the most noble of the Arborvitæ family, Thuja gigantea; and the tree pronounced the best amongst the novelties of the order is the pretty Retinospora fillifera. A most remarkable display of cactuses has been made by various cultivators, but prominent amongst them is Mr. Pfersdorf, of Kensall New Town, who supplies Covent Garden Market with those pretty miniature cacteæ which look so attractive in bright red pots of the size of thimbles. So again in the fruit department, the various examples of training fruit trees constitute an admirable exhibition. Another speciality is an exhibition of Wells's patent portable ground vineries, with bunches of grapes lying on the slates that form the ground-floor of these structures. Some workmen's dwellings have been constructed of walls made of mixtures of flints, stones, broken bricks, etc., and cement. A couple of boards are put a certain distance apart, and the mixture is poured in. As soon as it is hard, the boards are raised and another piece is added, and in due time a waterproof and substantial wall is constructed at about a third part of the cost of a similar wall of bricks. In the central garden there is a beautiful display of bedding plants, palms, tree ferns, and other noble subjects, respecting which we shall hope to say a few words hereafter.

ROYAL BOTANIC SOCIETY. - The third spring show of this society was scarcely so attractive as the first and second; nevertheless, there were on this occasion some interesting subjects, notably Auriculas from Mr. C. Turner, of Slough, and Messrs. Dobson and Son, of Isleworth. Pot and cut roses were shown in plenty, and there were collections of pansies, tulips, and pelargoniums. In the classes for stove and greenhouse plants, Mr. Burley, of Pembridge Place, presented some superb palms and flowering plants. Mr. B. S. Williams, of Holloway, exhibited numerous orchids, ferns, and yuccas. Mr. Bull, of Chelsea, sent a number of new plants. Conspicuous amongst the novelties was a new bedding pansy, called *Imperial Blue*, from Messrs. Downie, Laird, and Laing; the colour of this is bright blue, and it flowers profusely. Roses-Messrs. Paul and Son put up a splendid group, comprising-Le Rhone, Madame Willermoz, Alba rosea, Souvenir d'Elise, Madame de Stella, Souvenir d'un Ami, Madame Boutin, Lord Raglan, and President. From Cambridge, and Fisher Holmes. Mr. Turner took a good place with a group comprising Alpaide de Rotalier, Madame Willermoz, Lord Clyde, Souvenir d'un Ami, Charles Lawson, Celine Forestier, Victor Verdier, Professor Koch, Maréchal Vailant. Mr. Turner's group of three new roses consisted of Duchesse de Caylus, Maréchal Niel, admirably done, the colour pure yellow; Madlle. Margaret Dombrain. Messrs. Lane and Son, of Berkhamstead, Herts, presented Duchesse de Morny, Vicomte Vigier, Louise Darzins, Pierre Notting, Anna Alexieff, Madame Victor Verdier, Jean Goujon, Madame Alfred de Rougemont, Comtesse de Chabrilland. Messrs. Lane and Sons new roses were Duke of Wellington, Marcella, and Dr. Andry. Messrs. Lane and Sons put up a collection of pot roses in addition to the foregoing. In the amateur class there were some admirable contributions. Mr. James, gardener to F. W. Watson, Isleworth, had a group of six, comprising Baronne Prevost, Madame Charles Wood, Anna de Diesbach, Jules Margottin, John Hopper, François Lacharme. Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, had John Hopper, Gloire de Dijon, Anna Alexieff, Baronne Prevost, Princess Clothilde, Catherine Guillot. Pansies—Mr. James exhibited a beautiful stand of twenty-four cut blooms, comprising Noir, Chancellor, Musseffel, Cupid, Novelty, Tennyson, Arab, Invincible, George Wilson, General Lee, Dux, Cherub, Rev. H. Dombrain, Miss Cochrane, J. B. Downie, Harry, Concord, Masterpiece, Princess of Wales, Norma, Ladyburn Beauty, Blink Bonny, Jessie, Czar. Mr. James also exhibited twelve pot pansies. Mr. Hooper, of Widcombe Hill, Bath, exhibited cut blooms and pot plants. Mr. Wiggins maintained his well-established reputation as a cultivator of the Pelargoniums, his group of six being admirably trained, well out, and of course fresh as the spring; the varieties were Monte Christo, Vestal, Roseum, Beadsman, Pline, and another. Mr. James presented Herbaceous Calceolarias in the same matchless style as heretofore; the varieties were Charles Dickens, Gratitude, Lord Derby, Lavinia, Master Farrell Watson, Louise. Collections of Auriculas, both of exhibition and Alpine varieties, were shown by Mr. Turner, Messrs. Dobson and Son, Mr. James, Mr. Butcher, and Mr. Cox. Mr. Turner's best six were Smith's General Bolivar, Dickson's Duke of Kent, Spalding's Metropolitan, Smith's

Lycurgus, Lightbody's Fair Maid, Chapman's Sophia. Mr. James presented a beau-

tiful group of hardy ferns.

South Metropolitan Auricula Society.—The members of this society held their fifth annual exhibition on Thursday, the 25th of April, at Mr. J. Butcher's, South Street, Camberwell. Seedlings—Mr. J. Butcher was awarded a first-class certificate for a green edge seedling, Mrs. Butcher, and a first-class certificate for a self seedling, John Penn; Mr. John Pink, of Gotha Cottages, Cobourg Road, a first-class certificate for a green edge seedling, Annie; also a first-class certificate for a grey edge seedling, Eliza; and a second-class certificate for a white edge seedling, Miss Oliver. In the class for Seedling Alpines, Mr. J. Butcher took a first-class certificate for Jane Webster, Lady Middleton, and Rifteman; Mr. Pilcher, first-class certificate for a seedling Alpine, Emma. Mr. J. Butcher had Premier Prize for Lightbody's Robert Traill, very fine eight plants, Mr. J. Butcher, first with Traill's General Neill, Traill's May Flower, Dickson's Duke of Cambridge, Ashworth's Newton Hero, Lightbody's Robert Traill, Smith's Britannia, Wyld's Bright Phœbus, Martin's Mrs. Sturrock. Second prize, Mr. Pink, with Page's Champion, Olliver's Lovely Ann, Cockup's Eclipse, Sykes's Complete, Waterhouse's Conqueror of Europe, Lightbody's Alma, Gairn's Model, Martin's Mrs. Sturrock. First best six, Mr. J. Butcher, with Page's Duchess of Oldenburgh, Ashton's Prince of Wales, Headley's Stapleford Hero, Barlow's Morning Star, Ashworth's Regular, Butcher's King of the Crimsons. Second, Mr. Pink, Olliver's Lovely Ann, Page's Defiance, Grime's Privateer, Waterhouse's Conqueror of Europe, Lee's Eright Venus, Popplewell's Conqueror. Four plants, Mr. J. Butcher, Olliver's Lovely Ann, Headley's Staple-ford Hero, Ashworth's Regular, Spalding's Metropolitan. Collection of twenty-four plants; Mr. J. Butcher. There was a good show of Alpines, Polyanthuses, etc., etc.

TO CORRESPONDENTS.

GROUND VINERY.—A. B.—The Black Prince vine sent you is generally considered the very best that can be planted in a ground vinery. We have generally recommended the Black Hamburg, from having seen it produce superb crops in

these vineries, but Black Prince is a more general favourite.

TROP EOLUMS, KING OF SCARLETS, AND SCARLET GEM .- A. M. writes as follows: "Having ordered packets of Tropæolum seed, 'King of Scarlets,' and 'Scarlet Gem,' which were so strongly recommended in the FLORAL WORLD, I wish to know if they are very vigorous in growth, and at what distance apart the plants ought to be put in a bed, and whether the two would do to mix in the same bed."-It is a frequent mistake of lady gardeners to suppose that all plants can be raised from seeds equally well as from cuttings. It is true that thousands of useful plants are finer when grown from seed than any other way; but in the case of all named garden varieties, such as these tropæolums, such as any of the named geraniums, verbenas, etc., etc., the plants must be grown from cuttings, if uniformity of growth and colour are desired. The men who raise these varieties in the first instance grow immense numbers from seed, and having selected such as are worthy to be named, they destroy all the rest. The fact of their destroying them should suggest to amateurs that there is so much uncertainty about the produce of seed, that in the case of flowers of which named varieties abound, seedlings should be grown only as matter of experiment, and not at all with a view to the employment of the plants in a bedding display. Probably, the plants raised from seeds of these tropæolums may be very uniform and very good, but they may be very various and very bad. We fully expect they will be, upon the whole, good, for the Compactum race, to which they belong, produces a very showy race of seedlings. But we wish it to be understood that we have not recommended the sowing of seed of these plants, and that we never recommend the sowing of seeds of garden varieties, unless there are special and peculiar reasons for it. As to these tropæolums in particular, they may be planted a foot apart, and the two sorts will do very well together in the same bed.

BERBERIS .- J. J .- The leaf you send is like B. Nepalensis. Have you that?

Do you know it? We shall be most glad to determine the species, but from a leaf only it is not an easy matter. If the plant from which yours was obtained has been ten years out of doors, then it certainly is not Nepalensis, for that would have been killed by frost in 1860 and in 1867. The three distinct forms of B. Japonica are easily distinguished by those who are used to them, but it is no easy matter to furnish rules for distinguishing them. The best off-hand characters we can give are as follows:—The true Japonica is of spreading habit, and gets up slowly, has very broad leaves, and more or less yellow mixed with the green of the leaf. B. Bealii runs up fast, and makes a tall plant, but does not spread much, and has less yellow in its colouring. B. intermedia is exactly intermediate between the other two. We should be greatly obliged if you could favour us with a leaf and flower each of B. concinna and B. pallida. The late severe winter removed from our collection B. glumacea, B. Hookeriana, and much injured B. Fortunei, B. Jamesonii.

DAVALLIAS. - F. M. S .- You ask as if you thought it a rule for Davallias to die out in the centre of the pot while still alive all round. It is not the rule for them to do so, and we suspect that yours have been subjected to a drip of water, which has killed the centre of the plant during the winter. They may recover all their former beauty if left alone, but were they ours, we should certainly repot them. To do this is an easy matter enough. Prepare a compost consisting of four parts fibrous peat chopped to the size of walnuts, one part silver sand, and one part broken pots of the size of hazel nuts, with all the dust resulting from the chopping and breaking. Mix together thoroughly. Have new or quite clean pots for the plants, put in crocks to fill one-fourth the depth of the pots; turn out the plants, shake the soil from them, and with a sharp knife cut them into pieces, so as to remove all the dead rhizomas, and make nice pieces of them. Keep as many good roots as possible, but such roots as have been travelling round and round the pots, and which you cannot spread out in repotting, cut away entirely. As for the arrangement of the rhizomas, you must use your own judgment and taste. When you have placed them to suit you, fix them in their places with pegs, and fill in the soil amongst their roots tolerably firm. Place them in a dark, warm place-a gentle hot-bed will do, if you have no other-but they must be screened from sunshine. Give no water at the roots, but twice a day send over their leaves a light shower from a syringe, and enough of this will reach the roots for at least a fortnight, toafford all the moisture they require.

Rhododendrons.—F. S. W.—You do not give us the least idea where you date from, so that we cannot judge if there be any local circumstances to interfere with the flowering of your rhododendrons. You say the "common rhododendron blossoms beautifully here;" but where is "here?" It is very probable, we think, that you have the "crimson and white rhododendrons," that is to say, the hybrids of Catawbiense, in a soil quite unsuitable for their well-doing. The "common," that is to say, the Pontic rhododendron, will thrive in almost any soil, but is not worth a place in a good garden; but the garden varieties require good sandy peat, and do far better in a rather moist, shady position, than in the full sun. If yours is a hot, dry soil, the proper way to make a rhododendron-bed will be to excavate a great hollow, and line it with clay; then within the clay to lay down a bed of peat, and plant in that. When finished, it ought to be a little below the general level. The cultivation of the rhododendron is not everywhere understood, as witness those planted on banks in the Kensington garden of the Royal Horticultural Society, and

which have been perishing from the day they were put there.

NAMES OF PLANTS.—N. C. L.—The plant growing on the old wall appears to be Geranium pusillum, but from the mite you send it is impossible to determine it

with certainty.—E. W. A. G.—Your pretty shrub is Ceanothus azureus.

BOOKS.—C. W. P.—For the society to be formed, a few good periodicals would be necessary as well as books. It is a good thing to gather people together frequently, and keep them interested in things of the day, and to this end periodicals are a great help. We should recommend the Gardener's Chronicle, the Gardener's Magazine, and no other weekly horticultural work. Amongst the monthlies, L'Illustration Horticole and the Botanical Magazine should have place. To your list of books add Lindley's Theory of Horticulture, Grindon's British Garden Botany (a capital book for every amateur gardener and botanist), Du Brueil's Practice of Grafting and Training, William's Orchid Grower's Manual, Hibberd's Rose Book, and Profitable Gardening, and the first eight

volumes of the Floral World. There are, of course, many more desirable books, but these should be in the first list.

HARDY HERBACEOUS PLANTS. - I am afraid that the request I have to make may prove troublesome; but I really cannot be offended if you decline to answer it, for then I must watch your pages attentively. I have a small garden, and enclose a list of what plants I have in it; but occasionally I am for a short time without bloom, especially in the spring. Can you recommend a few cheap herbaceous plants to fill up those voids, and thereby greatly oblige—E. A. Moss Rose, Snow-drop, Winter Aconite, Siberian Scillas, Crocus, Pansies, Colchicum vernum, Hepaticas, Triteleia uniflora, Blue Anemone, Daisies, in sorts; Tulips, early and late; Alpines, or Baziers; Yellow Primrose, Wallflowers, Iberis semperflorens, Aubrietia Campbelli, Violets, Hyacinthus Nonscriptus, Carnations, Picotees and Pinks, Nar-Carnatons, Fiotes, Hyachtens Noiscriputs, Carnatons, Fiotees and Priks, Marcissus poetica, Moutan Pæony, Auricula-eyed Sweet William, Perpetual Roses, in quantity; Iris Germanica, Gentiana septemfida, Cheiranthus, in variety; Yellow Alyssum, Œnothern Missourensis, Fritillarias, Andromeda, Trollius Americanus, Phloxes, Saxifrages, Sedums, Bulbocodium vernum, Trumpet Lily, Gladiolus, Lilium lancifolium, Verbenas, Pentstemons, Lobelias, Colchicum autumnale.—[This is a very good list of E. A.'s, and may be useful to many of our readers. readers. As there is a lack of spring flowers, we recommend the addition of the following:—Orobus vernus forms a bush-like mass, and is covered with purple flowers in April; Myosotis sylvatica, and M. alpestris, blooming freely in April and May, and far surpassing in beauty the most costly jewellery. Plant patches of sylvatica wherever places can be found for them. Polyanthuses are not in the list. Sow seed now, cr better still, buy a few hundred plants of Mr. Webb, of Calcot Gardens, Reading. Narcissus bulbocodium is one of the best of all the spring flowers. Nepeta violacea takes up the tale in blue when the spring flowers are just over. Herbaceous pæonies come in at the same time superbly. Allium ursinum is a pretty white flowering plant to flower at the same time as yellow Alyssum and perennial Iberis. Anemone fulgens is a grand scarlet-flowering species for the spring, scarce but invaluable. Aquilegias are also desirable, and all the kinds are good. Where established they sow themselves, and continually increase, and they are at their best in May. Arabis alpina is not in the list; it is indispensable for sheets of white in April and May. Gerauium sanguineum is a charming thing to flower from the 1st of May to the end of August. Corydalis bulbosa presents its pretty purple flowers in April. Dondia epipactis should be in the list, though it flowers in March. If E. A. consults the O'Shane's lists many more good things may be found.]

Accuba Himalaica.—I observe in the Floral World, in an article by you on the Aucubas, the following remark on A. Himalaica:—"This appears to be quite hardy, but has not, as far as we are aware, been fully tested as to its ability to undergo the rigours of this climate." Now last June I placed in the open ground a young plant of Himalaica, which stood all the rigour of the winter, without suffering in the least degree, and, too, after the hard weather had departed, pushed forth its new leaves in a most vigorous manner. Close to this plant, Garrya elliptica, Buddlea globosa, Ceanothus azureus, and Laurestinus, were cut to the ground, the two first destroyed, root and branch. No doubt you will hear from other quarters, but I thought you would like to have as much evidence as possible as to the hardi-

ness of the plant .- J. J., Wingham, Kent.

HARDINESS OF SALSIFY.—My attention was directed to this root by an article in your April number. I sowed a bed of it, and a bed each of parsnips, three sorts of carrots, and of scorzonera on the 8th of April. About the middle of May the beds were all green, showing a good plant. On the 23rd of May we had a bitter frost, which destroyed all the young carrots, parsnips, and scorzonera, but left the salsify unhurt. I am greatly obliged to you for suggesting the cultivation of this root, which I have frequently heard of as a delicious vegetable when properly cooked. I think its hardiness a great point in its favour.—T. R. [We sowed salsify on the 20th of February, and the bed is evenly covered with strong plants after four severe frosts. At Stoke Newington, all the early sown seeds, with the sole exception of the salsify were destroyed by frost, and had to be sown again on the 2nd of May.]

THE FLORAL WORLD

AND

GARDEN GUIDE.

JULY, 1867.

ARTIFICIAL STONE FOR GARDENS.



O find a reliable and elegant substitute for stone is a matter of the highest importance in the laying out and embellishment of gardens. In the formation of terraces and in every variety of architectural garden, as also in the formation of gardens in town, it is next to impos-

sible to do well without employing stone, or a substitute for it. As a rule, stone is too costly to be extensively used in gardens, and in the most richly-furnished places we find curbs, statuary, urns, fountains, and vases made of iron or sham stone, of various degrees of merit, there being no hesitation at all on the part of the proprietors of great gardens in employing the cheapest material obtainable for the purpose, the admitted costliness of stone making an end of all shame on the subject. A man of means and taste would not care to put a plaster urn in his entrance-hall, or a cast-iron vase upon the staircase in his mansion, but in the garden he will countenance them, for the climate is not kind to marble, and custom sanctions the imitation of it.

The grand question for practical men is, whose or what particular preparation is the best where real stone cannot be employed? There are several varieties of artificial stone offered to the public, but three of them occupy a prominent place in the competition for favour, and they are respectively known as Austin and Seeley's, Rosher's, and Ransome's. The product of the last-named manufacturer has been frequently recommended in these pages, and we are induced once more to direct attention to it, for the patentee, Frederick Ransome, Esq., has recently adopted a new method of manufacture, which results in the production of a beautiful material, at a considerably cheaper rate than heretofore.

At the time of writing this, we have just returned from a visit to the works of the Patent Concrete Stone Company, at East Greenwich, where Mr. Ransome's new process is being carried out. About a hundred scientific men were invited to witness the process of manufacture, and the unanimous opinion was, that a most important advance had been made, not only in the production of a

VOL. II.-NO. VII.

13

material possessing the colour and mechanical texture of stone, but also of producing it in endless variety of embellishment, the articles produced being as strikingly characterized by elegance and appropriateness of design as by the hardness and imperishability of the material. During our inspection of the process, we learned that the "Patent imperishable siliceous stone," which has long been considered the brightest textured and most perfect imitation of stone hitherto produced, is now quite superseded by the "Patent concrete stone," which is so much cheaper than all other kinds, that there can be little doubt it will very soon be universally employed, not only in gardens for vases, fountains, edgings, and balustrades, but also by builders for cornices, facings, and wherever a cheap imitation of stone would be preferred to brick or plaster. Mr. Ransome's new discovery is, no doubt, the result of the difficulties that attended the manufacture of his siliceous stone, and an illustration, therefore, of the adage, "Necessity is the mother of invention!" The old process consisted in working up a mass of siliceous grit into the required form, and then injecting into it a solution of caustic alkali. The mass was then subjected to heat, and a sort of glassy cement was produced throughout, which not only gave the mass its coherence, but also that bright, half-sparkling character by which it differs in appearance from every other kind of artificial stone. The process was tedious, though the result was admirable; a beautiful material was produced, but the inventor was dissatisfied with his method, and commenced a series of experiments with a view to abolish, if possible, the employment of heat in the manufacture, without sacrificing any of the good qualities of the original compound. His success has more than justified the cost and labour incurred in the discovery of the new method of manufacturing stone. The first process consists in compounding together sand, stone-dust, and silicate of soda, the last-named material being in the form of a viscous fluid. The mixture is placed in the moulds, and is then saturated with chloride of calcium, and the whole mass is at once solidified and cemented together—as effectually solidified and cemented as in the recently-introduced mixture of hard rubbish with Portland cement, which is coming into use for the construction of cheap, waterproof, indestructible walls. The Patent Concrete Stone, thus produced in the first instance, is of a close granular texture and a clear grey colour; it has, in fact, all the appearance of a good white marble. It is, however, at first somewhat soft, so that when new it would not be fair to put it to a severe test, with a view to ascertain its strength; but it is always improving with age, and eventually becomes as hard as flint through the action of the atmosphere, which converts the chloride of calcium into a silicate of lime, rendering it more and more valuable the older it becomes.

Although we learnt these particulars during our visit to the manufactory a few days since, we were not then, for the first time, made acqueinted with the properties of the patent concrete stone. In the year 1863, when Mr. Ransome first discovered the new process, he prepared for us a handsome moulding for the front court of the experimental garden at Stoke Newington, and this moulding is at

the present time one of the most beautiful objects of its kind we have ever yet seen, and contributes, in a great degree, to the beauty and richness of the display which is made by means of the plunging system. It has been subjected to severe frosts, but is quite unhurt; its flowery tracery is as sharp and bright as at first, and the material has become as hard as adamant. Hidden amongst some shrubs are a few blocks of this moulding that were left over after the work was done, and have there been exposed to all weathers for a period of four years. They are black with dirt, but in other respects they are as perfect as when turned out of the moulds, and it would apparently be no easy matter to break them. One of these was submitted to the examination of the gentlemen who were assembled at the works on the 21st of last month, and pronounced a most satisfactory example of the capabilities of the concrete stone to resist the destructive influences of the weather in this country. S. H.

ADIANTUMS OF THE STOVE.

T page 173 I completed the list of the most useful hardy and greenhouse Adiantums, and, according to the promise there made, I now attempt a selection from the stove kinds. I feel bound to say, however, that I have grown all the stove kinds in warm greenhouse

temperature with the most complete success, and have tried many in closed cases, and found them grow luxuriantly without the aid of artificial heat even in severe winters. The remarks on cultivation at pp. 169 and 170 apply, without any exception, to the species and varieties now to be noticed.

A. caudatum. — Once-divided grey-green gracefully arching fronds, each tapering to a point, where a little bulbil plant is produced. Scarce and curious, a good fern to grow in a small

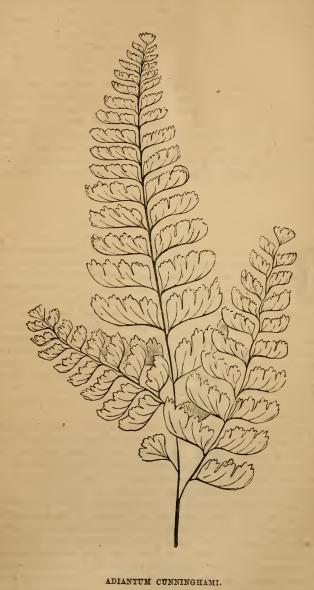
suspended basket.

A. concinnum.—A most lovely maidenhair fern, with elegantly-notched pinnules of a rich metallic green when mature, but tinged with pale rose when young. It grows into a fine bold tuft, and makes fronds eighteen inches in length, when liberally treated. It has been tried here in a cool house several years in succession, and has not once survived the winter, so we may fairly reckon it one of the most tender of the family. It is important in the cultivation of this fern never to wet the fronds, as it causes them to break off close to the crown. A. concinnum is deciduous, and must be kept nearly dry after it has lost its fronds until the new crop appears.

A. cristatum.—The true cristatum has light distantly-divided fronds, the pinnæ of which are lance-shaped, and furnished on each side of the rachis with oblong ovate pinnules. Stipes and rachis distinctly purple, pinnules fresh full green. It is scarce and pretty,

decidedly tender, well adapted for a warm Wardian case.

A. cultratum.—A splendid exhibition species, closely allied to A. trapeziforme, and a good companion to that splendid fern. The



fronds are pale green, the pinnules oblong and pointed. It requires rather liberal pot room, and a soil abounding in siliceous grit.

A. Cunninghami.—This is generally understood to be the same as A. formosum; but that is a mistake. It is here figured from a New Zealand specimen, for which I am indebted to my friend, Mr. Robert Forsaith. Not only are the pinnules larger and more distinctly serrated on the superior margin, than those of formosum, or its near ally, affine, but the plant is more tender than either of those species, and I feel compelled to separate it from its congeners as a true stove species. At the same time it must be understood that the stove is not essential, as it will thrive in the greenhouse; but is more likely to die in winter, if damp and cold, than such as cuneatum, affine, formosum, etc. The fructification is very distinct and pretty.

A. curvatum.—It is a difficult point to settle which is the most beautiful species of the genus Adiantum, but in any severe comparison the one now under notice will have a large claim to the highest place. It is of delicate habit, with black stipes and rachis—in other words, black stalks; and the pinnæ radiate from a centre, and consist of long curved pinnules, which are serrated on the upper margin. The colour is bright, almost emerald green; but the plant always presents several shades, paler when young fronds are rising, and darker where the matured pinnules overlap each other. This fern enjoys a good heat, with shade and abundant moisture.

A. Farleyense.—A scarce but already celebrated fern, which, at the International Exhibition of 1866, was considered the most valuable contribution of all in the classes for fine-foliaged plants. I have not grown it, but have seen it in several collections, and it appears to be of robust habit, so that when generally distributed it will be a great favourite. This is related to A. trapeziforme; its distinctive property is the large size and deeply-laciniated margins of the pinnules. It forms one of the most beautiful specimens ever

staged in a conservatory or exhibition.

A. intermedium.—A very distinct species, the fronds one to two feet in length, with dark stipes and rachis, usually presenting three pinnæ, the terminal one larger than the rest. The pinnules are ovate, oblong, and wedge-shaped at the base; when young, of a rosy colour; when mature, bright yellowish-green, and bearing prominent brown sori on their margins. This fern likes a good heat, and though it may be grown in a greenhouse, it is safest to transfer it to a cool part of the stove during winter.

A. lucidum.—A pretty little species, with tapering fronds and entire lance-shaped pinnæ, of a bright green colour when mature, but rosy when young. This is a difficult fern to grow, and, though evergreen, it invariably becomes disfigured in winter. Every kind of vermin will find it out and prey upon it, unless great care is taken in its preservation; it is, therefore, not adapted for beginners.

A. lunulatum.—A most elegant species, with long whip-like once-divided fronds, and dark crescent or kidney-shaped pinnæ of a delicate pale-green colour. This is well adapted for suspending, but requires great care to keep it. During winter it should be placed in a warm part of the stove, and have but little water; yet must never be quite forgotten, or allowed to become quite dry.

A. macrophyllum.—A handsome and distinct species, which may at first sight be mistaken for a Pteris. The pinnæ are large; those which produce sori are acutely oblong, and wedge-shaped at the base; the sterile pinnæ are irregularly hastate. When young, the fronds are of a rich rosy hue; when mature, yellowish-green. This is fond of warmth, and rarely survives the winter in a cool house.

A. reniforme.—A beautiful species, with kidney-shaped fronds, figured and described at page 241 of the eighth volume of the Floral World. The plant there noticed as thriving in a closed case without the aid of heat, is now a fine specimen with large fronds in perfect health. It will grow in any greenhouse if kept warm and shaded, and may always be covered with a bell-glass to advantage.

A. asarifolium.—A large edition of A. reniforme, with fronds quite circular and three inches across. This is the best of the two

for exhibition.

A. tenerum.—This may be regarded as a greatly-enlarged form of A. cuneatum. It is light, elegant, yet grand in character, and one of the best for exhibition. Cool treatment does not suit it, but

otherwise it is easy enough to manage.

A. sulphureum.—An exquisite golden-colour maidenhair fern of rather small growth. The fronds are regularly divided, tripinnate, the pinnules cuneate at the base, reniform on the upper edge, where they are densely crowded with sori. The upper side of the frond is a shining green, the under side is covered with farina of a gold yellow colour. Messrs. Veitch and Son honoured me with a plant of this rare species very shortly after its introduction, and I have therefore been enabled to give some attention to its habits and requirements. It must have stove temperature, must be sheltered from sun and draughts of air, requires less water than the generality of Adiantums, and, like the powdered Nothochlænas, quickly suffers if either too dry or too wet. It is very scarce and dear, but, as it produces abundance of spores, will, no doubt, soon become plentiful.

A. trapeziforme.—A beautiful species, and a general favourite. The fronds are pedate, forming a nearly perfect semicircle of pinnæ; the pinnules very large, irregularly four-sided or trapeziform; their colour a beautiful bright light green. When well grown, the fronds attain a length of three to four feet. A very desirable fern, quite essential in a collection, however small, which embraces species

requiring the stove.

A. Wilsoni.—A curious and most beautiful species. The fronds are divided into three to five pinne, which are reniform or cordate, sometimes elegantly ovate, and always of a hard leathery texture. The colour is a fresh, delicate shade of grass-green, rendered more beautiful by the distinctly-forked veins. This fern will not thrive out of the stove, and under the best treatment is, in common with most other Adiantums, shabby in the winter. The splendid characters of these ferns during summer amply compensates for their poverty of appearance during the dull months of the year, and the cultivator should not seek, by any forcing treatment, to compel them to grow in the winter season. They all require a definite season of rest.

S. H.

THE VILLA KITCHEN-GARDEN.—No. I.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.

N commencing a series of papers, which I propose to devote to the subject of Kitchen Gardening, I wish to say, at the outset, they are not intended to teach those men who occupy positions in the more exalted stations of gardening; although perhaps with those a perusal

would not be time ill spent. But they are chiefly intended to suit the position and scope of men less favourably situated, and the writer hopes that his efforts to diffuse amongst the readers of these pages some practical information for the proper management of a kitchen-garden, may be useful to many of the readers of this work.

The writer feels himself at full liberty to state candidly that he starts without any presumptuous notions of his superior abilities in this matter; because he is one of those men who has been bred to the garden, and the kitchen-garden more particularly, and has still to depend on the proper management of a garden for his livelihood. But having done so, to the great satisfaction of a late respected employer, who has repeatedly requested the writer to put his practice upon paper, for the benefit of the public, he has consented to do so in this form; and hopes, by only giving sound and practical information in a plain readable language, to succeed in impressing upon the mind of the young gardener, and the amateur, some of the chief matters to be observed in managing a kitchen-garden.

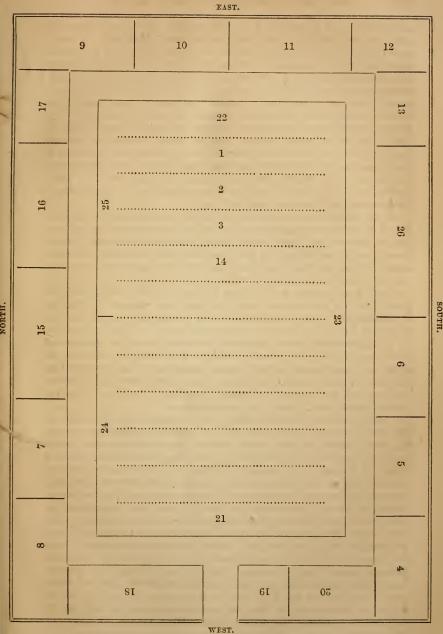
THE GENERAL PLAN. - With this brief introduction, I will proceed to the more practical details of my subject; and, in the first place, I may refer to the plan here given, and to state that it is not given as adapted to any particular spot or position, but as applicable to the majority of villa gardens, from half an acre to two acres in extent. It is eminently adapted for villa gardens, for this reason—that the grounds of these residences are, generally speaking, of greater depth than width, so that a square form could not well be introduced. And it is important to remember that this parallelogram form secures more of the sun's influence than would any other, without introducing divisional walls; as the length of the south wall, taken in connection with the narrowness of the garden, must increase the temperature near it by radiation—to an extent that can only be estimated by taking into consideration the length of the wall—and then we shall understand how much more of the temperature of the garden is influenced by radiation in this form than in a square one. To my mind this is such an important consideration in the ultimate productiveness of the garden, by securing early and better crops, that some trilling objections to it ought not

to be taken into account. I do not propose here to go into the question as to which is the best position for a kitchen-garden, because in the majority of cases there is no choice; so I would rather take them as we find them: and what we cannot secure by choice we must endeavour to obtain by a liberal outlay and skilful

management.

WALLS AND HEDGES .- The position being decided upon, we have to deal with the subject of walls or fences. In the first place, a wall, running the whole length of the south side, ten to twelve feet high, is not only desirable, but absolutely necessary to a good garden; and it would add considerably to the value of the garden if walls on the east and west ends, of the same height, were added, and an eight-feet wall on the north side; but where expense is a consideration, the two ends and north side-walls may be substituted with a close oak fence, at least six feet high. I never advocate any kind of hedge to enclose a kitchen-garden, on account of the number of slugs and other vermin it is likely to harbour. But, nevertheless, hedges are sometimes required, and when such is the case I prefer a yew or box hedge, as they afford more shelter than any other evergreen or deciduous shrub that can be used; and the number of years they last in good condition, when annually clipped and otherwise well cared for, would astonish inexperienced people. The yew is to be recommended on the score of the height it attains, as it may be induced to go to the height of eight or ten feet.

EXTENT OF GROUND.—I know of no general rule which I can give to guide any one as to the extent of ground required, as the requirements of some families are so different from others, from the fact that with some, plants and flowers are the greatest consideration, while with others good and successional supplies of vegetables are equally important. But I may say, in connection with this subject, that it is a very important part of the business in forming a new garden. One important matter is the observance of a strict economy in space (and the reader will grant that it applies with great force to a villa garden); but in wishing the reader to take into consideration the subject of space, I do so with a full knowledge of its important results, as there are hinged upon this point two essential features: first, to secure sufficient land to grow breadths of vegetables, according as they are likely to be required; and, secondly, not to embrace more than the labour power allowed will keep in good condition. But on this point many make a great mistake; and this brings us to the second principle to be observed in this matter: for they forget that a garden one acre in extent, properly and skilfully cultivated, will yield more pleasure and a better result than one double the size indifferently cultivated. Therefore, if we would avoid dissatisfaction and disappointment hereafter, we must be guided entirely by the means that can be brought to bear the burden of the expense. If the case be so favourable that this need not be a consideration, so much the better; but if the means wherewith to find labour and all other necessaries be limited, then, I say, by all means reduce the size of the garden to an extent equivalent to the



PLAN FOR A VILLA KITCHEN-GARDEN. Length 160 feet; width 110 feet.

outlay. Depend upon it, a small garden that can be well done will give greater satisfaction, and will produce an equal amount of vegetables, as a large one that is only indifferently tilled. I am aware that this kind of reasoning may not meet with the approbation it deserves by those who are yet unacquainted with the responsibilities of a villa residence; because I admit without any reluctance that I was not myself a convert to the same opinion, only to a certain extent, until I was called upon to supply the wants of a family, in a neighbourhood where land was selling, not many hundred yards distant, at £1000 per acre; and, as I have nothing to fear in making public the result of my experience, I honestly confess that a few years' practice in a limited space taught me more of the true principles to be observed in conducting the work of a kitchengarden, than did fifteen years' previous experience in places where an unlimited space was at command.

Soils and Drainage.—On these two subjects I shall say but little; for the same remarks apply to soils as to positions, for it is but seldom there is any choice. Nevertheless, I may remark that a lightish loam, resting on gravel, is the most suitable. Drainage is only absolutely required in low situations, and in soils that are more or

less of a calcareous or clayey nature.

THE IMPROVEMENT OF SOILS.—The ultimate success of the garden will depend entirely upon the nature of the soil. If it be a lightish loam, as just recommended, with a dry subsoil, then a proper course of culture will produce favourable results. But if it be more of a clayey texture, with a close under surface, then the addition of chalk, coal-ashes, lime, burnt earth, and bricklayer's rubbish, in sufficient quantities to make it more porous and open, is desirable. In peaty or sandy soil, loam, chalk, and clay are the most essential elements to improve the staple, and should be used liberally,

according to the texture to be improved.

ARRANGEMENT OF THE GARDEN.—My principal object in giving the annexed plan, was to assist the reader in the important work of the arrangement of the garden, and to make the remarks I shall presently make on the subject of cropping more intelligible. think, by dividing the garden into different sections, and by pointing out the position for the permanent crops, the cultivator who may not be a master of that part of the business will be materially assisted. Besides, by referring to the different plots, which are all numbered, except on the principal square, as I go on presently with the work of cropping, it will enable the cultivator to foresee better the work which is before him. As will be seen by the plan, I have only shown one entrance to the garden; but more can be added, or this one altered, as the position or other circumstances may require. I have only shown one principal walk skirting the whole garden, and this will suffice for a garden up to one acre in extent; but if larger, a walk through the centre, at right angles, will divide it into four quarters, and make it more convenient for working.

SKIMMIAS AND THEIR CULTIVATION.

MONGST the host of beautiful Japanese shrubs introduced of late years to our gardens, the Skimmias deserve a high place on account of their neat evergreen habit, and the abundance and beauty of their scarlet berries. The species best known is that commonly

described as S. Japonica, which is incorrectly named; its proper name is Skimmia Reevesii. This is the slowest grower and the most dwarf in habit of the series, and the most precocious in berrybearing, for, when only two or three inches high, every shoot will show a terminal bunch of berries. S. Japonica, which is usually denominated S. Japonica vera, on account of the former confounding of it with S. Reevesii, is of more robust habit, and a far handsomer shrub. The flowers of all the species are fragrant, but those of S. Japonica are especially so, and therefore we may consider it doubly valuable. But far finer in proportions and character than either of these is S. oblata, which has large leathery glossy leaves, and bears large orange-red berries of an extremely showy kind. Nearly all the plants of the true Japonica and oblata that have been sold hitherto have been grafted on S. Reevesii, but they may all be grown from berries or from cuttings. It has been our custom to sow the berries in February or March in large boxes filled with sandy peat, and to place these boxes in a damp, shady part of a fern-house. Berries sown in February or March last are just now showing their seed-leaves, so we may conclude that the seeds require nearly six months to germinate. Having lost several batches of seedling Skimmias by the attacks of vermin, we feel bound to caution cultivators, that, although the little trees are never touched by vermin after they attain maturity, yet in the soft condition of seedling plants every kind of garden vermin will attack them, and they must have due protection. To raise them from cuttings is a very simple process; we discovered it quite by accident. In the month of March we found amongst our potted Skimmias some that had become one-sided and leggy, and we pruned them back to restore them to symmetrical outlines. It immediately occurred to us to make use of the prunings, and they were accordingly shortened, so as to consist of a crown of leaves and an inch or two of wood each. They were firmly potted close together in sandy peat, and covered with a bell-glass, and placed in a shady part of a fern-house, and kept always moist. Twelve months afterwards they began to grow, and then made faster progress than seedlings, the wood having thrown out abundance of fibres. Probably the month of July would be a still better time to take cuttings, but we have not tried it.

A correspondent asks for a few advices on the cultivation of Skimmias, accompanying the request with the usual complaint, that they do not grow fast enough to please him. We have tried them in all kinds of soils and situations, and under the most diverse circumstances they live, but only under peculiar circumstances do

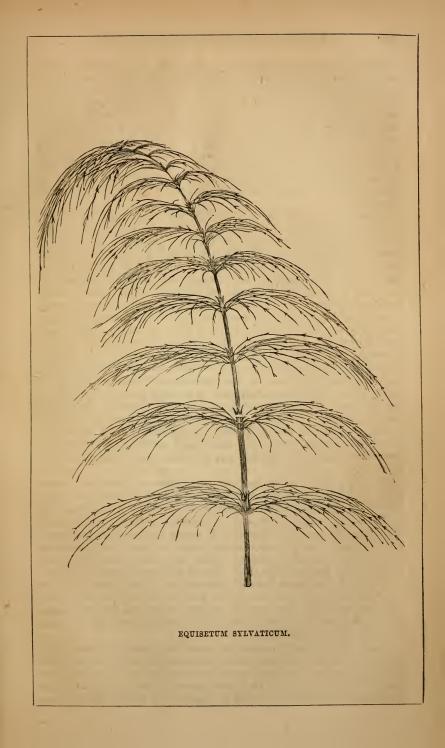
they really prosper. To do them justice, they should be in a cool, shady, moist peat-bed; or, if in pots, should be potted in lumpy peat with which a goodly proportion of siliceous grit has been mingled, and should be kept in a damp shady pit all the summer, or in a moist border under trees. Our Skimmias are all in pots, being kept solely for furnishing the borders in the winter by the plunging system. They now stand on a bed of earth under the shade of a leafy beech-tree, and have a most luxuriant appearance, their berries being now about the size of cherry-stones. In the spring of the present year, we found a few in our stock that were in poor condition, apparently unwilling to fruit and unable to grow. They were left alone till the middle of April, when they began to make feeble attempts to push new shoots. They were then taken out of their pots, and all the old soil was shaken off them, and they were repotted in good lumpy peat, with an admixture of the sharp sand resulting from siftings of the sweepings of gravel-walks. When potted, they were placed on a moist bed in the most shady part of a fern-house. They are now in a state of luxuriant growth, having put forth shoots from all parts of the old wood as well as from the terminal points of the branches. They will now be placed with the others under the beech-tree to harden, and no doubt they will next year have a good crop of berries. In any other soil than turfy peat, and in any other than a damp, shady position, the growth of the Skimmia will be more or less unsatisfactory.

EQUISETUMS.



HERE is a rather troublesome weed, of very elegant structure and curious history, met with in undrained clay and loamy soils; it is of a pale green colour, and consists of a tough and rather decumbent stem, surrounded with whorls of thread-like branches, its

true leaves, if it has any, being in the form of minute scales, placed around points or rings which occur at regular intervals on the stems. The plant is known to country people as the "horse-tail" or "mare's-tail," and in botany is called Equisetum arvense, the field Equisetum. Though a troublesome weed, and one that is detested where it grows plentifully, it is well worth a place in the fernery, and when planted in a shady bank of peat, it spreads fast, and makes its appearance in all sorts of places, but does not drive better things out of the way, or even render itself objectionable. I have some of it in a shady part of my fernery, and very much enjoy the mixture of its elegant light green spray with such ferns as Onoclea sensibilis, and others that have bold-looking fronds. Those who know this plant, as probably most of our readers do, will be, perhaps, prejudiced in favour of the genus to which it belongs. But whether such be the case or not, I wish to recommend these plants to the



notice of fern-growers, as suited to contribute in a special manner to the interest of a collection of acrogenous plants. I have all the species that are known, and one of them I consider the most elegant of all plants ever seen upon the face of the earth. This gem is called Equisetum sylvaticum, one stem of which is represented in the accompanying figure. If the reader can imagine a nine-inch pot, with about fifty of these stems crowded together in it, all of them arching over with exquisite grace, like feathers from the tails of birds of Paradise, the colour the most tender shade of emerald green, no apology will be needed for calling attention to it in these pages, in which beautiful hardy plants have always received special attention.

Equisetum sylvaticum is a British plant, very scarce generally, but plentiful enough in some districts. When met with it is usually in peaty soil, beside a water-course in a shady wood, or on a bank beside a ditch overhung with trees and rank herbage; always in a moist, shady spot, and if not in peat, in some light soil of similar nature. My best plants in pots are kept under a stage, and have all the drip that results from the watering of plants above them, besides the water given them in the usual way, and their appearance is so delightful, they so fascinate me that I never enter the house where they are kept without having a peep at them. They are to me a feast which never satiates, though I sometimes become tired of flowers, especially after I have for weeks constantly been visiting great gardens, and comparing and criticising bedding effects. We have it also planted out in the shadiest and dampest part of a rockery, in a cool fernery, and also in a shady part of the fernery out-of-doors. It increases fast, and may, if desirable, be parted annually in spring when it begins to grow; but to make a fine specimen it should not be parted, but be shifted to a larger and larger pot every year, and this should be done without breaking the ball when the plant is shifted; no, not even the crocks should be removed.

Another grand species is Equisetum telmateia, which is of more robust habit than the last, with regular whorls of branches, which differ from those of sylvaticum, that they do not branch again. This grows on dry sandy banks, and is tolerably common, especially in the southern parts of England. It grows finely in the rockery if planted in a shady spot, and though found wild in very dry positions, I have never found it succeed except in a damp position, unless assisted with frequent watering. Sandy peat is the best soil for it.

Another and most beautiful species is *E. umbrosum*. This is very distinct and very rare. The whorls of branches are rather crowded, and they all rise at a regular angle, and gracefully arch over at their ends. This grows in very shady places, and requires

the same kind of cultivation.

Equisetum palustre is another exquisitely beautiful plant. By many this will be considered more beautiful than sylvaticum, for the slender branches divide and subdivide into the most hair-like ramifications; indeed, it looks as if constructed of hair, but in a manner that would be impossible to human fingers even if only in imitation

of its beauty. This grows in bogs, and therefore when under culti-

vation must have a damp position and plenty of water.

I have also plants of E. fluviatile, which grows in water; E. hyemale, also a water plant; E. Mackaii, which loves moisture, and E. variegatum, which will grow well under almost any circumstances. But these three have no beauty. They are like rushes, tall, rigid, without branches, very pretty in a certain sense in their construction, but are likely to interest only such as are devoted to the study of these plants. Therefore I do not recommend these, but the others named I would have every lover of ferns to possess. I have said nothing about the singular inflorescence of these plants, for it does not contribute to their beauty, though to the microcopist and botanist the inflorescence will afford abundant amusement. My object is simply to direct attention to a few beautiful plants that are very little known, and I, hope this short note will have effect that way. If any difficulty in procuring specimens, I am happy to say that Mr. Sim, of Foot's Cray, Kent, can remove it, as he keeps them all, and charges a mere trifle for them.

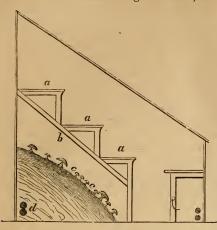
MUSHROOMS UNDER THE GREENHOUSE STAGE.



AST summer I visited the garden of a gentleman amateur south of London, which was one of the prettiest I saw during the season; and after praising the various successes, we began to talk about failures, and among other things he said that he was exceedingly fond of

mushrooms, and having failed in procuring any when he tried himself, he obtained the assistance of a man in the neighbourhood who professed to be thoroughly initiated in all the mysteries. The first thing procured was a large two-light frame, then two or three loads of hot dung, which, after sundry turnings, was finally made up into a bed; a fabulous amount of spawn was said to be inserted in it, special soil was procured to cover it, straw and mats to keep it in the dark; and when the bill come in for labour and material, £5 was not enough to pay it; and although this would not have been too much for a "hobby," had it been a success, yet the case assumed a very different aspect when it turned out that not a single mushroom was ever gathered from the bed. This, of course, was an extreme case, and enough to deter most people from any further attempt; but as I could always grow plenty of mushrooms for myself, I thought I might try for a friend; and after undertaking not to spend more than a tenth part of the money wasted in the previous attempt, he willingly consented, though not very sanguine of success. When September came, I was reminded of my promise. but took no notice; and when October came, to ease his mind, I sent in a load of very short but not rotten horse-dung, and told the man to put a spare light over it to keep it dry. This was turned once, and not till the end of the month did I really proceed to make

the bed, and then came a surprise at the place in which I put it. In the little "lean-to" greenhouse, 20 feet by 9 feet, was a three-



inch flow and return pipe, running round the floor of the house next the wall. back and front; at the back is a stage supported by uprights and bearers, from which the shelves are bracketed, a. Some rough feather-edged boards, b, were nailed to the under side of the bearers, and overlapped each other so as to form a waterproof roof: under this the bed c was made (enclosing the pipes d), 12 feet long, barely 2 feet high at back, and 2 feet 6 inches wide at the bottom. The fire

was lighted twice a week to give gentle bottom-heat, and bring the camellias in bloom on the stage overhead. The bed came into bearing in less than six weeks after spawning, or a fortnight before Christmas, and produced a good succession. The only trouble was an occasional sprinkle of tepid water, for it never had a particle of

covering of any kind.

I would ask our amateur friends who are fond of mushrooms, and have greenhouses that by a little ingenuity might be adapted to grow them in a similar way to this, whether a neat mushroom bed under the stage would not look more tidy than broken pots, dead and dying plants, etc., that too often accumulate there, to say nothing about the pleasure and profit to be derived by growing a plentiful crop of this useful esculent?

C. F.

How to Take Leaf Impressions .- Hold oiled paper in the smoke of a lamp, or of pitch, until it becomes coated with the smoke; to this paper apply the leaf of which you wish an impression, having previously warmed it between your hands, that it may be pliable; place the lower surface of the leaf upon the blackened surface of the oiled paper, that the numerous veins that are so prominent on this side may receive from the paper a portion of the smoke; lay a paper over the leaf, and then press it gently upon the smoked paper; with the finger, or with a small roller (covered with woollen cloth, or some like soft material), so that every part of the leaf may come in contact with the sooted oil paper. A coating of the smoke will adhere to the leaf. Then remove the leaf carefully, and place the blackened surface on a piece of white paper, not ruled, or in a book prepared for the purpose, covering the leaf with a clean slip of paper, and pressing upon it with the fingers or roller, as before. Thus may be obtained the impression of a leaf, showing the perfect outlines, together with an accurate exhibition of the veins which extend in every direction through it, more correctly than the finest drawing. And this process is so simple, and the materials so easily obtained, that any person, with a little practice to enable him to apply the right quantity of smoke to the oil paper and give the leaf a proper pressure, can prepare beautiful leaf impressions, such as a naturalist would be proud to possess. Specimens thus prepared can be neatly preserved in a book form, interleaving the impressions with tissue paper.

A FEW SELECT BEDDERS.

other cultivators, I had my doubts about the suitableness of this plant for bedding displays, and so I said nothing about it till experience should teach me what to say. Early in April last I planted out a few nice

tufts, and at the same time I cut up some others for increase of stock. Those first planted had to bear with dreadful weather, but were unhurt by frost and rain, and their appearance now is most beautiful; the growth being exceedingly neat, and the colour of the leaves nearly a pure orange yellow. There is, of course, a tinge of green in the young growth, but it does not affect the unity of tone of a ribbon line or mass of the plant. Those cut up for increase made roots quickly, and behaved so well, that I should regard this pyrethrum as one of the best of plants for amateurs, and a good substitute, in many cases, for Cloth of Gold, or any other golden-leaved geranium.

Goldfinch Geranium.—This was brought out by Messrs. James Carter and Co., two years ago, but did not attract much attention. It is not very promising in appearance as a pot plant, having greenish-yellow leaves, and a rather ill-defined, broad, cinnamon-coloured zone. It has been fairly tried this year at Stoke Newington, and proves to be a brilliant bedder of the very best constitution, and amongst the best of the yellow-leaved class. Mrs. Pollock, planted near it, is quite eclipsed by the splendour of Goldfinch; and this last we consider established as a good companion to Luna, these two being the best at present amongst varieties well proved of the

yellow-margined and brown-zoned series.

Ivy-leaved Geranium L'Elegante. — This variety, lately introduced to cultivation by Mr. Cunningham, of The Forge, Burton-on-Trent, is a perfect companion to the lovely golden-edged ivy-leaved variety, in praise of which we have often spoken. L'Elegante has a neat creamy margin, or a bright red margin, it being in the command of the cultivator to produce either colour at will. When grown in a good light, but in some degree screened from the sunshine, the variegation is creamy; but when exposed to the fullest glare of the sun, the red tint appears.

Geranium Brilliantissima is an advance upon the old "Brilliant" in respect of intensity of scarlet colour and abundance of flowers. Those who know Brilliant well will be inclined to doubt if in respect of colour it can be beaten, but it is a fact that Brilliantissima does beat it; and to say more in praise of this variety would be "waste-

ful and ridiculous excess."

Tropæolum Advancer.—We received this from Mr. J. J. Chater, Gonville Nurseries, Saffron Walden. It is of dwarf, compact habit, has small, rather yellowish-green leaves, small, very neatly-formed flowers of the brightest orange scarlet. The flowers are produced in such profusion, that Advancer must have first rank as a bedder;

and it appears to be quite incapable of making those strong running shoots that in many cases render bedding tropæolums more plague

than profit.

Lobelia erinus spectabilis.—Those who wish for the best edging lobelia in cultivation should obtain a few plants of this beautiful variety, and keep the stock on from cuttings. It is far superior to the best forms of speciosa, and is as good a grower as any. Messrs. E. G. Henderson and Son first sent out spectabilis, but probably many trade cultivators possess plenty of it by this time.

Lobelia erinus Miss Murphy.—This was sent out by Messrs. Dobson and Son, of Isleworth. It is of very compact dwarf habit, the flowers pure white. It makes an exquisitely beautiful edging.

Poa trivialis argentea.—This new grass is not nearly so effective at the present time, at Stoke Newington, as the well-known and universally-admired Dactylis glomerata, fol. var. It may yet prove to be invaluable, but we cannot say that it is so now. It has been planted out since the middle of April, and is growing freely. S. H.

DAHLIA IMPERIALIS.

BY KARL PROSPER.



AM somewhat surprised to find that this noble dahlia is scarcely at all known to the English gardeners. The fact proves to me that there is not much earnest inquiry after plants of noble outline and proportion, and that colour exercises a tyrannical influence upon the

tastes of my brethren of the horticultural profession. And what is Dahlia Imperialis? you ask. It is a tree-like species of dahlia, distinct in every way from the florists' flowers of this class. It rises to the height of seven to nine feet, when planted out in June in a good loamy soil, fully exposed to the sun, but sheltered from great gales. The leaves are of great size, deeply pinnated, and a fine plant presents, when viewed from a moderate distance, a very peculiar and most noble appearance; different, of course, from that of a fern, yet partaking somewhat of that character. So far it is "imperial," and will satisfy the lover of beauty. The next thing is to see its flowers, which falls to the lot of but few in England; but in the south of Europe I have seen it quite sheeted with flowers of most delicate white and rose, and these flowers are unlike the dahlias of the gardens, they are rather more like magnolia flowers; at all events, they contract in the ray florets so as to have a sort of bell-shape, and give to the plant an extraordinary character.

In such a cold season as 1867, I think the first week in July would be early enough to plant out Dahlia Imperialis. It grows fast, and by the end of September will have attained to noble proportions. What then? Shall we leave it to the frost to cut it down? No, I propose that at the end of September, or some time

before the 25th of October, we carefully take it up, give it a goodsized pot, and place it in a warm greenhouse and shut it up, to recover from the lifting, and that in due time we transfer it to the warmest part of the conservatory. Let it be growing on, in fact, the whole year round, and take care to strike a few cuttings in April every year, for planting out. Thus it may be made to do double

duty and give double pleasure.

The Editor has handed to me a letter from a correspondent, who seems in great difficulty "where to obtain the plants recommended by Mr. Prosper." I am told it is the rule to avoid, as far as possible, mention of the names of traders. The Editor remarks to me, "This is a constant difficulty, for we can scarcely mention a plant, even the most common, but some correspondent will aver that 'it cannot be obtained in the trade,' though at every good nursery there may be thousands of it." Well, I can say I have not recommended a single plant that cannot be easily obtained, but I know nothing of the capabilities of the little nurseries where Tom Thumb Geranium and Crystal Palace Tropæolum appear to be the only two plants they have ever heard of. Only a few months since, I looked over the stock at Messrs. E. G. Henderson and Sons, Wellington Road, St. John's Wood, and saw a considerable number of the plants I have been recommending during the past year. Yet that is not the only nursery where such plants are kept. I dare say Messrs. Veitch and Son, of Chelsea, have as varied an assortment. I am pretty sure that Messrs. Backhouse and Son, of York, have; and I could perhaps find a dozen more. But that is not my business. If I know of a good thing, my duty is to give it a place in my category, and leave the laws of supply and demand to work out all the rest.

SEEDS TO BE SOWN IN THE MONTH OF JULY.



N the early months of the year seedsmen are so overdone with work that customers are often kept waiting for weeks for the supply of goods ordered, and the customers themselves are so worried with earthwork, planting, and the rest of the activities of the spring, that many of the seeds purchased then are wasted through being carelessly sown, neg-

lected after they come up, or because that is just the worst time in the whole year in which to commit them to the ground. Now is the time for the lover of a garden to be busy in sowing seeds. Whatever is sown now will come up if there is vitality in it, and whatever comes up will make a good growth, and all biennial and perennial plants will bloom well next season. The three weeks from the 25th of July to the 15th of August are the best in the whole of the year for sowing seeds and striking cuttings. We shall first remark in a general way that the seed-bed should be in a clean and moderately fine state, and at this time of year it will be better if a shady position can be chosen for it, as in the event of hot dry weather just as the seeds are pushing through, many of the little plants may perish. Seeds are killed in various ways. When sprinkled haphazard on hard rough soil, many sink too deep to germinate, others are too much exposed, and so get burnt up. When drenched with water from a watering-pot, many get washed away, and the seedling plants are washed out of the soil, and the next ray of sunshine destroys them, and of course slugs and snails take their share of delicate dinners from batches of plants in the seed-leaf. These causes of loss indicate some of the points essential to success. Let the ground be dug over and broken fine. If in a nice friable condition and not poor, sow on it as it is, after having made it level and slightly sloping towards the walk or alley. If the staple, is a stubborn loam or clay, an artificial surface should be made for all choice seeds, and there can be nothing better for the purpose than a mixture of dung rotted to powder and leaf-mould, equal quantities, spread over the surface about three inches deep. Seeds as large as peas and not smaller than radishes sow in drills drawn an inch deep with the back of the rake. Smaller seeds sprinkle on the surface, and cover with about their own thickness of sifted earth, and then gently pat down with the back of the spade, or press with a board. Choose if possible a time when the ground is moist with rain. Sow thin, so that if the seedlings are not immediately transplanted they will not choke each other, and avoid if possible giving any water until the seedlings are up. In case of dry hot weather immediately after sowing, cover the seed-bed with boards resting on stones, or with moss or branches of evergreens—anything, in fact, that will prevent the ground becoming too dry, and that can be removed easily; and of course all covering must be removed as soon as the seedlings begin to bristle through.

Now as to what should be sown at this season. Let us look first at the kitchen garden. First Lettuces, say Paris and Bath Cos for late autumn use, and at the end of the month Hammersmith to stand the winter. Radish, Spinach, and Turnip are not less important. Prickly Spinach sown in August will really stand the winter; that sown in September is by no means certain to do so. Those who eat Endive should now sow a good breadth of the small green curled, which is very hardy. Now is the last moment to secure a bit of fine Parsley for winter use; sow on a rich soil, and thin to six inches apart when the plants are large enough to handle. Lastly, this is the best time in the year to sow Cabbage, and by good management one sowing in autumn may be made to supply cabbages of several kinds the whole year round, because the larger kinds will yield plenty of sprouts after the hearts are taken. But three sowings of Cabbage should be made: say the last week in July a pinch each of Green Colewort, Cattell's Reliance, and Early Barnes. In the first week of August sow Early York, Vanack, and Atkins's

Matchless. Last week in August sow Coleworts again.

In the flower garden, an immense collection of the finest herbaceous plants may be obtained at almost no expense at all by sowing while the ground is moist with rain. Considering the beauty of many of these things, and the difficulty frequently experienced in obtaining plants in spring, it is a wonder that at this season so few should take the little trouble required to produce them in myriads.

The following are invaluable for decorative purposes, and at all respectable seed shops seed of them may be had that will be sure to germinate if treated

as we advise :-

Aconitum album, A. Napellus, A. Canariensis.

Agrostemma Flos Jovis.

Alyssum saxatile, the best of all the yellow spring flowers.

Anthyllis vulneriana rubra.

Antirrhinum of sorts.

Aquilegia of sorts.

Arabis alpina, one of the best white-flowering plants in spring.

Armeria formosa and A. longiaristata.

Astragalus purpureus.

Aubrietia deltoidea and A. purpurea, most useful of dwarf flowering plants for spring and summer.

Campanula grandiflora, C. bononiensis, C. lactiflora, C. carpatica, Canterbury Bell.

Catananche cerulea.

Delphinium formosum, D. sinensis, and D. giganteum.

Dianthus atrorubens, D. giganteus, D. Japonicus, D. latifolius.

Digitalis of sorts.

Eupatorium corymbosum.

Hollyhocks in variety.

Lupinus elegans, L. polyphyllus, and L. magnificum.

Lychnis chalcedonica, L. Haageana, L. viscaria. Mimulus rivularis and M. cupreus. Myosotis alpestris and M. palustris. Enothera Lamarckiana, É. Jamesii, E. taraxacifolia. Pentstemon campanulatum, P. cordifolium, and P. Murrayanum. Potentilla atrosanguinea and P. splendidissima. Rose Campion. Rudbeckia fulgida. Saponaria ocymoides. Silene alpestris and S. Schafta. Sweet Williams.

NOTE ON GRAFTING THE GRAPE VINE.

INES are more frequently grafted than formerly, in consequence of the superior productiveness of many fine varieties when grafted on a free rooting stock. A short time since a discussion on the subject of grafting took place in the Revue Horticole between M. Boisselet and M. Carrière, chiefly respecting the merits, as compared with the usual way of cleft-

grafting, of a mode of performing the operation, and of an instrument employed for the purpose by Daniel Hooibrenk. M. Boisselet, in the first place, defends the mode of cleft-grafting, which M. Carrière says was unnecessary, as it was not attacked; and secondly, he states that he has frequently tried grafting with the instrument above alluded to, but has never succeeded. On the other hand, M. Carrière affirms, that with the same kind of instrument he has operated successfully not only in grafting the vine, but also the following plants :- In spring, in the open air: apricot, cherry, plum, apple, pear, poplar, amygdalopsis, cytisus, all the species. In autumn (September), in the open air: apricot, cherry, pear, plum, cotoneaster, purple filbert, syringa, thorn. In autumn (September), under g.ass: the fruit-trees above mentioned, together with the birch, oak, beech, thorn, lime, cotoneaster, and conifers. Here M. Carrière mentions the time and circumstances under which he operated; but of these, in the case of his opponent, we are not informed. Now, in our opinion, the season, or state of vegetation of the plant, is the main point. If grafting is done at the right time, which may be sooner or later, according to the nature of the subject operated upon, almost any instrument with a cutting edge will do; but if done at the wrong season, the most ingeniously constructed instrument, and with an edge as sharp as that of a razor, will not

ensure success, and more especially in the case of the vine.

Many years ago, Mr. Braddick, of Thames Ditton, generally failed in grafting the vine at the usual time of grafting in spring. He, however, received some vinecuttings from abroad in summer, after his vines were in full leaf, and anxious to preserve the sorts, and for the sake of experiment, he then grafted them, though almost hopeless of success; but as it turned out to his surprise, the grafts took well. By subsequent experiments, the result of which he communicated to the Horticultural Society, he established the fact that vines ought not to be grafted till the stock or plant on which the scion is placed is in leaf. Most probably, therefore, M. Boisselet's complete failure, with the vine at least, has occurred, like that of many others, in consequence of grafting at a season when the plant ought not to be cut on any account whatever, that is, after the sap is in motion, and before the buds expand. Any incision made during that period permits the vine to bleed, but most profusely if made just before the buds open; and the more vigorous the vine, the worse the bleeding. When large limbs of apple and other trees are cut and grafted just as they are on the point of bursting into leaf, the flow of sap is often so great as to "drown the graft," as suffusion from the overflow of sap is technically termed. But the loss of the graft is not the only bad consequence of the untimely operation. The unabsorbed extravasated sap ferments, becomes putrid or acid, and kills the vital tissue lying between the alburnum and inner bark. The stock consequently dies back to a greater or less distance below the wound, instead of keeping alive or healing over, as would be the case if cut back in autumn or winter. Many

persons complain that their pears on quince stocks do not succeed well. They should recollect that the quince is amongst the earliest of deciduous trees in coming into leaf, and therefore it should be headed back for grafting early in the year at latest; for when done at the time of grafting, or after its sap is in active flow, it dies or cankers at the grafted part, so that a perfect union cannot possibly take

place.

Presuming that due attention is paid to the proper time for grafting, the operation may be successfully performed in various ways. On the whole we consider that in most cases whip-grafting is the most preferable; and what is termed in the Revue Horticole Daniel Hooibrenk's system, appears to be nothing more nor less than whip-grafting. It is better than eleft-grafting, because more of the sections of the inner barks of the stock and scion can be made to coincide than by other modes. M. Carrière, who is a very intelligent horticulturist, details a case in which Hooibrenk's mode, or what we may as well call whip-grafting, succeeded better than cleft-grafting. In the beginning of September, he took two vine shoots, of which the wood was then half-herbaceous. One he cut in lengths of five or six inches, each piece being cut immediately under a bud at its base, and close above one at its top, exactly as if prepared for a cutting, but a slice at top was taken off as in whip-grafting, to receive the scion formed of a portion of the other shoot, which latter was cut so as to preserve a bud and leaf at its top, whilst its base was cut sloping, to fit exactly its counterpart at the top of the other piece intended for The parts were then tied and covered with grafting wax. Each grafted cutting or cutting stock was then inserted about half its length in a pot, and placed under a hand or bell-glass in a propagating house. The leaf at the top of the scion continued to act, and contributed to the formation of roots, and the union of the graft.

In the Gardener's Magazine of March 9th, 1867, M. Sisley, of Lyons, makes a communication on a yet different method, which has been adopted by M. Boisselet. He cleaves the stock between two bifurcations. It is no matter at what height of the stock this is done. Into the cleft he introduces the graft, cut as for ordinary cleft-grafting. It is then bound up with a strong ligature and grafting wax. He next binds the two branches of the bifurcation at two or three eyes above the cleft; and in the spring, as the sap rises, he pinches back the young shoots, causing thereby a flow of sap into the graft. He does not cut off the two sumps of the stock until the autumn following the insertion, by which time the graft is well

developed.

The experiences of M. Boisselet have sufficiently demonstrated that this mode of grafting is nearly infallible. It offers the utmost advantages to the cultivator, especially as a graft can be inserted wherever there is a bifurcation, hence affording the power to place a number of grafts on the same stock. The sudden suppression by means of the knife of the whole of the vine above ground is always prejudicial to the root-action, and the "Greffe Boisselet" is free from this objection. Another important advantage attending it is, that if the graft does not prosper, nothing is lost, for the branches of the bifurcation will produce their fruit the same, and the stock will not suffer more than from the check to which it is subjected by the ordinary process of cutting down.

The horticultural journals of France have given publicity to this invention, and rendered justice to its inventor. The Imperial and Central Society of Horticulture of France has been occupied at several of its meetings in the consideration of the subject, and M. Duchartre, the secretary general, testified, at one of its recent

meetings, that he had practised this new mode of grafting with success.

The "Greffe Boisselet" may be practised at every season of the year, but its inventor recommends—and with reason—that the autumn should be preferred, the best time of all being when the leaves of the vine begin to turn yellow.

VALUE OF COCOA-NUT FIBRE REFUSE IN THE CULTIVATION OF ORCHIDS.



EW plants have so exercised the intelligence of horticulturists, have caused so much groping in the dark, or so many divers experiences, as Orchids. At first it was thought advisable to place them upon the summit of a little hill or mound, formed of little cubes of turfy earth, or even of compact peat, and disposed in such a manner as to allow the air to cir-

culate among them, the whole being in pots. Then they fixed among the heaps fine chips of wood, which traversed the said cubes, at the same time that others

placed vertically supported the pseudo-bulbs.

To this primitive mode were added pieces of rotten wood, in order to furnish, as was thought, a certain nourishment to the roots. Very soon for the pots were substituted large square baskets, formed of the branches of trees; then pots more or less pierced with holes. Later still, the little cubes of earth were replaced by common moss, still intermixed with bits of rotten wood, and the detritus found in the cavities of old trees.

At the same time that these different methods were being largely practised, they used also branches of trees with their bark on (oak was preferred), upon which the orchids were fixed, the rhizomatic base being surrounded by a tuft of moss, in order to hold a slight and proper degree of moisture. This method is still very

generally followed.

Until very recently, pots, baskets, and branches of tree, have been suspended here and there in orchid houses; and certainly the coup-d'wit which they formed was anything but agreeable, and served to inspire in many amateurs a sort of repulsion for the cultivation of these plants, which have otherwise every desirable merit.

But latterly, without abandoning entirely the system of suspended branches, we more willingly cultivate orchids in vases, more or less ornamented and pierced on all sides; these vases are arranged upon the pounded dross of iron in a sort of amphitheatre, which presents to the eye, by the diversity of the habit and inflorescence of the plants, an aspect truly ornamental, and very much preferable to the inelegant suspensions. Some plant orchids in thick tufts of *Sphagnum*, disposed in ridges. But in this last method these tufts sink down through the syringing and watering, and become so compact that the roots of the orchids, which, as every one knows, are essentially ethereal, penetrate it with difficulty, which necessarily influences them to the prejudice of their vegetation and inflorescence.

Struck by the inconvenience which has just been mentioned, several who were interested in the cultivation of orchids set themselves to discover a substance more suitable, more easily permeable by air and water, to replace with advantage the Sohagnum; and the individual who first discovered it must have cried out with joy Eureka! an exclamation which has been preferred for discoveries far less happy;

and this material is cocoa-nut fibre.

It is only recently that this new mode of plantation for orchids has been tried, and it has been in every case followed with complete success. We regret that we are unable to mention the name of the horticulturist or amateur who first used it

for the purpose.

No substance is by its nature at once firm and spongy, so well adapted for the cultivation of orchids. The air and the water will circulate in it with the greatest facility; the orchideous roots can penetrate it freely in every way, and find easily the humidity necessary to the life of these plants, with something more—a certain humus, or sort of abundant manure which exists between the fibres and surrounds them.

All kinds of orchids, whether from America, India, or Africa, flourish in this new soil; and there is no longer a necessity for suspending them on branches or in baskets, so displeasing to the eye. Prepare a ridge, raised high in the middle, with sloping sides, and in it plunge the pierced vases, well drained and full of the said fibres, in a round hillock; the whole to be in a large stove with a low roof, and so arranged that the tall-growing species are in the centre, and those of less elevation at the sides. Against this method of cultivation it has been urged, and that certainly without cause, that this substance gives birth to champignons; but even if it did, which it does not, the champignons do not interfere with the orchids.

ASPIDISTRA LURIDA VARIEGATA.

HOSE who trust catalogues for information on gardening will find that they are forbidden to grow this beautiful plant unless they are possessed of a good stove, and the mistaken notions that have prevailed as to its hardiness have hitherto prevented its culture by amateurs, to whom it might be invaluable. In the Cottage Gardener's Dictionary, Aspidistra

lurida is classed as a stove plant with purple flowers, blooming in July, and a general remark is added, in reference to the genus, that it consists of plants "more curious than ornamental." It so happens that this species, and its variegated variety, are quite hardy, and both are eminently ornamental, while the variegated variety is one of the grandest plants of the kind we possess. Aspidistra lurida is a member of the great family of Lilyworts. The plant is stemless, and forms a creeping fleshy rhizome very fruitful in buds, which may be removed with a portion of the rhizome to form independent plants. It throws up gigantic leaves, and produces in April and May a number of unattractive blossoms on the surface of the soil, and sometimes beneath the surface. It is often said to blossom underground, but this only happens when it is planted too deep. The variegated variety is a magnificent subject for decoration or exhibition, and forms a noble ornament to a sheltered rockery. It will endure our winters with impunity if planted in a position where water cannot lodge about its-roots. It is admirably adapted for pot culture, and specimens may be shifted on to ten or twelve-inch pots, and will repay the cultivator by the superb character of the foliage, which is usually variegated with broad creamy stripes, the leaves being frequently equally divided with dark green and creamy-white. To make a fine specimen, it should be potted in a large pot in April, in a strong turfy loam, and assisted to make a good start with moist bottom-heat. When divided for increase, bottom-heat is useful, and the best time to part it is from the beginning of April to the middle of June. When manure is used, the leaves have less variegation; and to keep it true, it is best to trust to a sound turfy loam rather than use a stimulating compost.

GYMNOGRAMMAS.



N looking over the many beautiful sections of ferns which we now possess, I often think that Gymnogrammas are not so extensively grown as they deserve to be, neither do we find them on all occasions so luxuriant as they might be, or possessing dimensions which would cause them to command attention at horticultural exhibitions. Among them there are

many beautiful varieties-for instance, Peruviana, argyrophylla, and others of equal merit, which though perhaps not extensively cultivated, are yet I think well known. Their treatment is simple enough, yet they require a little more care than others. The chief difficulty which I find some cultivators meet with is wintering them. Now as I have been very fortunate with them, I will throw out a few hints which, if carefully attended to, no one need despair of success. It will not be necessary to follow the plant through every stage of growth from its infancy; suffice it to say that by commencing with a young specimen in the spring, and keeping it moving throughout the season, no one need be afraid to have it in an eight or ten-inch pot by the autumn, or even larger, depending on the variety, for some of them are rather stronger in growth than others, consequently they require more pot-room. When a large plant is required, it may be encouraged over the second year in the same manner and under similar treatment as during the first, and until it has got into a 15 or 16-inch pot, which sizes I have often had them in. Most of the Gymnogrammas being from tropical climates, require a rather high temperature; that in which I have found them to succeed best during the spring and autumn is 60° or 62° by night, allowing the house to rise 10° or 15° by day with sun; the heat during the growing season may run about 70° by night, and from 80° to 85° by day. The plants at this season must be carefully shaded from the direct rays of the sun. For

this purpose I prefer a moveable or running shade to one tacked on for several months together in summer. The fronds of these and many exotic ferns are apt in dull weather, when too much shaded to damp, ere they become properly developed, in many instances causing the leaves to assume the appearance of having been clipped. Neither should they be syringed overhead; sufficient moisture can be obtained by moistening the paths, etc., when required; indeed I never like to have that evaporation taking place in a fernery which is unavoidable in other houses, such as plant stoves or vineries, etc. While the latter require a free circulation of air, I generally find ferns to grow most luxuriantly in a rather subdued atmosphere, though this must not be carried to an excess, lest the air become stagnant; and although it is necessary to keep a fernery somewhat closer in the growing season than the houses just named, yet I do not recommend any one to shut up a fernery very early in the afternoon. In watering ferns, a liberal supply should be given in summer, and while they are in active growth; indeed, if ever they suffer from want of it, they receive a check which often spoils the appearance of the plants for the season. When the period of growth is over in the autumn, they must be gradually prepared for a season of rest by withholding water at the root and reducing the temperature. After this I have generally found it necessary in winter to remove Gymnogrammas from the fernery (which in some cases has not a south aspect) to a house so situated, where they may receive more light and sun; without this they are difficult to winter successfully. The temperature of their winter quarters should run from 50° to 55° by night; in this position they must never have an excess of water at the root, neither will they require any moisture in the atmosphere of the house. If the foregoing remarks are carefully attended to, plants 3 feet in diameter, and well filled up with beautiful healthy fronds, may be grown in a couple of seasons. The sort of soil I have found best is two parts light turfy peat, one light turfy loam, a little silver sand, and a few pieces of broken freestone; but they will also do well in peat alone with one-fifth part of silver sand added.

NEW PLANTS.

DIANTUM SCUTUM (Hibberd).—This beautiful Adiantum has been raised by Mr. Robert T. Veitch, of the Nursery, New North Road, Exeter. It will, perhaps, revive the discussion of the interesting question of the existence of fern hybrids, for it partakes largely of the characters of A.

Farleyense and A. trapeziforme, yet is quite distinct from both. In habit it assimilates directly with Farleyense, the stipes and rachis being black and polished, and the pinnæ rather distant, but it differs in the pinnules being smaller and less deeply crenated. It is named scutum from the regular escutcheon outline of the terminal pinnules, a form to which the others approximate very nearly. But whereas the terminal pinnule is of regular outline, the superior margin being semcircular, and the two inferior margins forming a crescentic wedge, those constituting the remainder of the pinnæ are unequally sided, and their superior margins are deeply crenated. This beautiful fern becomes fruitful at an early age, young plants with only one frond fully developed, presenting sori on all the pinnules. These are oblong, prominent, with linear indusium, and their rich brown colour adds much to the beauty of the pale green fronds. This is a valuable addition to this muchadmired genus of ferns, and will take high rank in the series of adiantums adapted for exhibition. It appears to be of more hardy constitution than A. Farleyense, and is scarcely inferior to that magnificent fern in beauty.

AMARYLLIS PARDINA, Spotted-flowered Amaryllis (Bot. Mag. t. 5645).— Amaryllideæ. A magnificent species, discovered in Peru by Mr. Pearce, collector to Messrs. Veitch and Son, of Chelsea. The flowers are of great size, opening to a flat face, the ground colour is yellow, richly covered with small red spots. It is a

stove plant of the most easy cultivation.

BLETIA SHERRATTIANA, Sherratt's Bletia (Bot. Mag. t. 5646).—Orchideæ. This is the prettiest of the true Bletias. It is a native of New Granada, whence it has been imported by Messrs. Low and Co. The flowers are produced in a terminal mass of a dozen or more, they are of a bright purplish rose colour. The Cattleya house appears to be the proper place for this Bletia.

BILLBERGIA SPHACELATA, Chupon of Chili (Bot. Mag. t. 5647).—Bromeliaceæ. A handsome plant, conspicuous for its magnificent crown of leaves, each from four to five feet long. The flowers are pale, rose-red, with long yellowish green bracts.

STEMONACANTHUS PEARCEI, Mr. Pearce's Stemonacanthus (Bot. Mag. t. 5648).

—Acanthaceæ. A splendid stove plant, native of Bolivia; introduced by Messrs.

Veitch. It is an erect undershrub, with lanceolate leaves five to six inches long, and axillary clusters of brilliant scarlet flowers.

DENDROBIUM MACROPHYLLUM VAR. VEITCHIANUM, Veitch's Variety of Broad-leaved Dendrobe (Bot. Mag. t. 5649).—Orchideæ. This variety differs from the true D. macrophyllum of A. Richard only in having a smaller leaf. It is one of the most splendid of the glorious family to which it belongs, but unfortunately it is a difficult one to flower.

GARDEN GUIDE FOR JULY.

Kitchen Garden.—This is not a busy time, and the principal business is to provide for winter supplies of vegetables. Lose no time, especially in showery weather, in planting out winter greens of all kinds. Towards the end of the month sow winter spinach, collards, endive, lettuce, and canliflowers. In every case be guided by the traditions of the district as to the best dates for sowing these things, for to be a week too early is quite as bad, perhaps worse, than a week too late.

Flower Gurden.—This is the time for budding roses, propagating many kinds of bedding plants for next season (especially geraniums), and sowing seeds of hardy herbaceous plants. Dahlias and hollyhocks need constant protection against earwigs, and to keep them safe from gales. Carnations, pinks, and picotees may now be increased by pipings. Cultivators of these beautiful flowers may find it advantageous to read over now Mr. Kirtland's article on the subject, in the Floral World of March, 1866.

Fruit Garden.—Buds inserted now on plum stocks will soon unite; this is a good time, too, for summer grafting. Strawberry runners must be thinned out, except where all are wanted for increase of stock. Where bush trees have been frequently pinched, it will be well to give them one more pinching back at once, and after that leave them untouched for the remainder of the season. Bush trees that have not been pinched, but have made long rods, should have the points of all those rods cut off about the 25th of the month. The buds of the season will ripen better for the operation, but it must not be done too early, or many of them will start, and make useless sappy shoots.

Greenhouse and Stove.—To provide for winter flowers is the principal business now. Look to cinerarias, primulas, Poinsettia pulcherrima, and other winter subjects, which ought to be doing well now. Where many varieties of zonale pelargoniums are grown, there will now be a splendid display in the houses. This is a good time to select and purchase such plants, as they can be seen in flower; and when the sorts are obtained, they can be at once multiplied.

*** Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale this year.

NEWS OF THE MONTH.

RECENT EXHIBITIONS.—This has been a good exhibition season, though in nearly every case the weather has been unpropitions. The ROYAL BOTANIC SOCIETY has held two great shows, and there is another announced for July 3rd, which will make an end of the season at Regent's Park. The ROYAL HORTICULTURAL SOCIETY has converted the great Rhododendron tent (Captain Fowkers's suspension tent) into a showhouse, and therein a great exhibition was held during five consecutive days. Like other doings of this society, the "great" show was a great failure; there were, of course, many worthy contributions, but the gathering was,

as a whole, very poor, and there was no effect produced worth remembering. Almost simultaneously the BOTANIC SOCIETY OF MANCHESTER carried out an exhibition in the gardens at Old Trafford on a gigantic scale, continuing open ten days. This was the second best show of modern times—second, in fact, to the International Horticultural Exhibition of 1866. Two great tents and the great glass-roofed exhibition house were well filled with groups of plants and flowers. The display of orchids was remarkable alike for the splendour of the specimens, and the great value of a large proportion of the species and varieties brought forward. Findlay, the curator at the Manchester Botanic Gardens, was the guiding spirit in this great affair, and won golden opinions by his persevering energy and kindly disposition. Amongst minor gatherings we have attended, we must not forget the great exhibition in St. John's Coilege, Cambridge, on the 23rd of May, when Richard Headley, Esq., brought forward the best tulip of the year, a Bylomen named Sir Alexander Cockburn. The first great exhibition at the CRYSTAL PALACE, May 25th, was in every respect good, the bank of pelargoniums alone being worth the great attendance with which the show was honoured. We write these notes too early to admit of any remark upon the Rose Show of June 29th, but we trust that in spite of a bad season, some good flowers will be brought forward. In a separate paragraph we have collected a few of the most important contributions to the exhibitions of this season, with the view of indicating the favourite varieties in the several classes. We select only the best in every case, and our readers may be sure that the varieties which take the highest positions at great exhibitions are as a rule the best. We have also enumerated a few of the most meritorious of the noverties we have seen this season.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual dinner took place at the London Tavern on the 27th of June. The Right Honourable Sir Robert Peel, M.P., presided. There was a large company and a liberal subscription.

THE SEASON.—Save and except that we have had a considerable amount of sunlight, the season hitherto has resembled very closely that of 1860. The generally low temperature has not only retarded vegetation, but in many instances the earliest sown seeds have been completely destroyed, and those that have survived are far in arrear of the condition we expect at so advanced a period of the year. In the latter part of the last month we saw several cultivators engaged in destroying their potatoes, in order to plant winter greens, having given up all hopes of deriving any advantage by allowing the potatoes to remain. On the other hand, there have been heavy crops of grass and clover, and a good hay season, and cereals look well, though much thinned by the winter. It bids fair also to be a good turnip year, and though there are reports of the cattle plague, we may, upon the whole, consider that we are more than ordinarily free from plague, blight, and pestilence. There is a dearth of fruit, and a dearth also of vermin. Good and evil may be very nearly balanced in the present condition and prospect of the crops, yet we cannot say at present that 1867 is likely to prove a good year, and we fear that, on the whole, it will be a bad one.

GATHERINGS FROM EXHIBITIONS.

ITH a view to place before our readers the names of the best varieties in various classes of exhibition subjects, as determined by the awards at the principal exhibitions, we have culled from our note-books the following memoranda, which we are inclined to believe will be of more value in this form than if presented in the usual form of reports.

Auriculas at the South Metropolitan Show.—First 8, Mr. J. Butcher: Green Edge—Traill's General Neill, Traill's May Flower, Dickson's Duke of Cambridge. Grey Edge—Ashworth's Newton Hero, Lightbody's Robert Traill, Smith's Britannia. White Edge—Wyld's Bright Phobus. Self—Martin's Mrs. Sturrock. Second 8, Mr. Pink: Green Edge—Page's Champion, Olliver's Lovely Ann, Cockup's Eclipse. Grey Edge—Syke's Complete, Waterhouse's Conqueror of Europe, Lightbody's Alma. White Edge—Gairn's Model. Self—Martin's Mrs. Sturrock. First 6, Mr. J. Butcher: Green Edge—Page's Duchess of Oldenburgh, Ashton's Prince of Wales. Grey Edge—Headley's Stapleford Hero, Barlow's

Morning Star. White Edge—Ashworth's Regular, Self—Butcher's King of the Crimsons. Second 6, Mr. Pink: Green Edge—Olliver's Lovely Ann, Page's Defiance. Grey Edge—Grime's Privateer, Waterhouse's Conqueror of Europe. White Edge—Lee's Bright Venus, Popplewell's Conqueror. First 4, Mr. J. Butcher: Olliver's Lovely Ann, Headley's Stapleford Hero, Ashworth's Regular, Spalding Metropolitan. Best single plant in the entire show, Lightbody's Robert

Traill, shown by Mr. Butcher.

Show Pelargoniums at Royal Botanic Exhibitions.—Equal, First 9, Messrs. Turner and Fraser (May 29). Mr. Turner's were—Royal Albert, Pericles, Belle of the Ball, Desdemona, Spotted Gem, Patroness, Lord Clyde, Lilacina, Fair Rosamond. Mr. Fraser's were—Leander, Desdemona, Etna, Empress Eugénie, Rose Celestial, Lilacina, Pizarro, Ariel, James Lodge. In the amateur class: First, Mr. Nye, with Garibaldi, Patroness, Belle of the Ball, Etna, Rose Celestial, Fair Rosamond, Sir Colin Campbell, Madlle. Patti, Desdemona. Second, Mr. Ward, with Beacon, Pericles, Rose Celestial, Empress Eugénie, Sir Colin Campbell, Desdemona, Madlle. Patti, Lilacina, Garibaldi. Third, Mr. Wiggins, with Alba formosa, Flambeau (fiery, but scarcely a show variety), Maid of Honour, Cynosure, Pericles, Regina formosa, Princess of Denmark, Royalty, Aimée. Fourth, Mr. Weir, gardener to Mrs. Hodgson, Hampstead, with Argo, Belle of the Ball, Etna, International, Queen of Beauties, Pericles, Attraction, Sir Colin Campbell, Virginia. On the 19th June, Mr. Turner led with Royal Albert, Viola, Miss Burdett Coutts, Patroness, Lord Clyde, Guillaume Severeyns, Regina formosa, Jewess, Mary Hoyle. Mr. Fraser led with Amy, Fair Rosamond, Excelsior, Favourite, Lord Clyde, Princess of Prussia, one of the finest whites known; Inez, Ariel, Guillaume Severeyns. Messrs. Dobson and Son third, with Pasha, Purity, Patrician, fine, the flowers large, smooth, and richly coloured; Léotard, Caractacus, splendid for colour; Constance, Regina formosa, Favourite, Bacchus. In the class for amateurs, Mr. Nye first, with Madlle. Patti, Conflagration, Pericles, Empress Engénie, Lord Chancellor, International, Perdita, Lord Clyde, Fair Rosamond. Second, Mr. J. Ward, with Diana, Viola, Bacchus, Empress Eugénie, Conflagration, Madame Furtado, Caliban, Fairest of the Fair, Lord Clyde.

FANCY PELARGONIUMS AT ROYAL BOTANIC.—On the 29th of May, Mr. Fraser led with Clara Novello, Celestial, Maroon, Lucy, Roi des Fantaisies, Arabella Goddard. Second, Mr. Turner: Roi des Fantaisies, a superb Delicatum, Lucy, Godfrey Turner, Ellen Beck. In the amateur class, first, Mr. Donald, with Bridesmaid, Queen of the Valley, Lady Craven, Miss in Her Teens, Rosabelle, Clara Novello. Mr. Weir showed Lady Craven, Mrs. Stewart Hodgson, Evening Star, Bridesmaid, Celestial, Delicatum. Mr. James, of Isleworth, showed Silver Mantle, Princess Helena, Cloth of Silver, Godfrey Turner, Mrs. Marnock (in the style of Godfrey Turner, but lighter and brighter), Mrs. Ford. On the 19th of June Mr. Fraser again led with Hebe, Ellen Beck, Miss in Her Teens, Lady Craven, Arabella Goddard, Roi des Fantaisies. Second, Mr. Turner, with Sarah Turner, Delicatum, Anne Page, Silver Mantle, Mrs. Dorling, Clemanthe. Third, Messrs. Dobson and Son, with Fairy, Arabella Goddard, Lucy, The Rover, Delicatum, Acme, Roi des Fantaisies. In the class for amateurs, first, Mr. Donald: Ellen Beck, Hebe, Marionette, Cloth of Silver, Celestial, Roi des Fantaisies. Second, Mr. Bailey, with Clemanthe, Delicatum, Zoe, Eleanor, Madame Dolby, Bridesmaid. Equal second, Mr. Windsor, with Miss in Her Teens, Delicatum, Mrs. Ford, Roi des Fantaisies,

Arabella Goddard, Godfrey Turner.

Tulips at the National Exhibition.—The exhibition was this year held at Stockport; the following were the varieties shown in the principal classes:—First Pan of 12, Mr. William Lea's; the varieties were Mrs. Lea, Heroine, Violet Amiable, Mrs. Pickerill, Curion, Masterpiece, Sans Joe, Ajax, Duchess of Sutherland, Bacchus, Sarah Hedley, Triomphe Royal. Second Pan of 12, Mr. John Turner: Apelles, Charles, Mrs. Pickerill, Violet Amiable, Heroine. Mrs. Lea, Sans Joe, Polyphemus, Alex. Magnus, Denman, Aglaia, Triomphe Royal. Third 12, Mr. William Longson: Waterloo, Lord Lilford, Violet Amiable, George Glenny, Heroine, Lady Crewe, Sans Joe, Paxton, Denman, Queen Charlotte, Aglaia, Lavandicken. Fourth 12, Mr. George Mort: Colbert, John Wilkinson, Seedling, Amiable, Compte, Heroine, Captain White, Slater's Telemachus, Charlotte, Denman, Aglaia, Bion. First Pan of 6, Mr. William Lea: Masterpiece, Violet Amiable, Heroine, Ajax, Bacchus, Triomphe Royal. Second 6, Mr. Peter Swindells: Charles, Beauty, Andro-

meda, Sans Joe, Denman, Aglaia. Third 6, Mr. John Turner: Charles, Adonis, Heroine, Sans Joe, Denman, Aglaia. Fourth 6, Mr. H. Travis: Charles, Violet Amiable, Heroine, Sans Joe, Atlas, Aglaia. Fifth 6, Dr. Hardy: Garibaldi, Queen of North, Heroine, Sir J. Paxton, Lord Denman, Lady C. Gordon. Sixth 6, Mr. Sharpe: Masterpiece, Violet Amiable, Heroine, Storer's Seedling, Duchess of Sutherland, Aglaia. First Pan of 3 Feathered, Mr. William Lea: Heroine, Paxton, Violet Amiable. Second 3 Feathered, Mr. Haynes: Lord Sydney, Seedling, Heroine. Third 3 Feathered, Mr. John Morris: Devonshire, Bienfait, Aglaia. Fourth 3 Feathered, Mr. Millar: Masterpiece, Heroine, Edgar. Fifth 3 Feathered, Mr. Haynes: Royal Sovereign, Seedling, Aglaia. Sixth 3 Feathered, Mr. Parkinson: Willison's King, Victoria Regina, Heroine. First Stand of 3 Flamed, Mr. Haynes: Paxton, Denman, Triomphe Royal. Second 3 Flamed, Mr. T. Mellor: Masterpiece, Bacchus, Aglaia. Third 3 Flamed, Mr. J. Moores: Polly, Denman, Aglaia. Fourth 3 Flamed, Mr. Haynes: Triomphe Royal, Duchess of Sunderland, Lord Sydney. Fifth 3 Flamed, Mr. Thurston: Sir J. Paxton, Lord Denman, Aglaia. Sixth 3 Flamed, Mr. William Lea: Sans Joe, Duchess of Sutherland, Aglaia. Sixth 3 Flamed, Mr. J. Moores: Heroine, Denman. Third 2 ditto, Mr. William Lea: Heroine, Devonshire. Fourth 2 ditto, Mr. William Longson: Heroine, Denman. Fifth 2 ditto, Mr. W. Davenport: Charles, Polyphemus. Best Feathered Tulip in the whole Exhibition, Mr. John Turner: Apelles. The Best Flamed, ditto, Mr. H. Trayis: Atlas.

PAUL'S ROSE GARDEN.

"The Rose Garden: embracing the History of the Rose, the Formation of the Rosarium, and the various Practices adopted in the successful Cultivation of this popular Flower; and an Arrangement of the most esteemed Varieties," etc., etc. By William Paul, F.R.H.S. Second Edition. Kent and Co.

N the year 1848, Mr. William Paul, then associated with the old firm at the Cheshunt Nurseries, published a handsome volume entitled "The Rose Garden." This work was profusely illustrated with coloured figures of favourite varieties of roses, and was received with general favour by the horicultural public. The book now before us is a five the coloured or the coloured to the coloured with general public.

favour by the horticultural public. The book now before us is a reprint, "carefully revised, and in part re-written," but without the coloured plates, and therefore by its price adapted to a larger circle of readers. In regard to the merit of the work, it would be difficult to utter undeserved praise. Mr. Paul has literary skill as well as practical knowledge, and has employed it to good purpose in explaining the mysteries of his own craft, and in which he stands pre-eminent, for the benefit of lovers of the Queen of Flowers. This notice will suffice to introduce the work in its new form to the attention of our readers, and as a sample of the contents, we subjoin a few extracts, which may be useful at this season:—

the contents, we subjoin a few extracts, which may be useful at this season:—
"Forcing Roses.—In forcing roses on a small scale, a pit with a span roof may be constructed at a very trifling cost; and an Arnott's stove, proportioned to the size of the pit, proves an effectual and wholesome heating apparatus. A pit twenty feet long and fifteen feet wide, of sufficient height to enable one to walk conveniently down the middle, will hold 100 large plants, and to heat this structure a moderatesized Arnott's stove is sufficient. A pan of water should be placed on the top, to preserve a sufficient degree of moisture in the atmosphere. Plants removed from the ground will, if on their own roots, require to be grown one year in pots before forcing. Their early treatment is the same as that of other roses in pots, which is fully described in the last chapter. To this, then, we need not revert, but will suppose the amateur in possession of strong plants of at least two years' growth, whether of his own raising, or purchased at the nurseries. When about to force roses on their own roots, we should ascertain that the pots are full of sound healthy roots, for if they are not, only partial success can be obtained. If fine flowers are wanted, the last week in December or the first week in January is early enough to commence forcing, and but little fire-heat should be given in the first instance. This is their artificial spring, and a low night temperature must necessarily be secured. The rose is not a lover of a powerful heat; it must be forced steadily, increasing the temperature by degrees, if flowers are required very early. Where bottom-heat can be obtained, we think it advantageous, although by no means necessary. A good point to start from in forcing is 50° to 55° by day, and 40° by night. The temperature of the houses requires close attention; and the state of the atmosphere as regards its humidity, although often overlooked, is equally important. Too dry an atmosphere causes a drain upon the nutritive organs, and will cause the young leaves to wither and fall off; it also encourages red spider. A too damp atmosphere is favourable to the production of mildew, especially if the temperature should fall suddenly, from the effect of atmospheric changes from without, or other causes. A dry air may be remedied by syringing the plants copiously, and if found necessary by pouring water on the floor of the house. A damp atmosphere is best remedied by giving air. Unless the weather be very frosty, air should be admitted for the first fortnight, to strengthen the growing buds; but so soon as leaves are formed it will be necessary to keep the house constantly closed, except the air be very mild, which it seldom is at this season of the year. By the admission of cold air, the young leaves may, from their extreme tenderness, be blighted in an hour. The plants being once fairly aroused, and their roots in action, the temperature may be gradually raised till we reach 50° by night and 75° by day. A higher temperature than this should not, I think, be produced artificially. Towards the spring sudden bursts of sunshine will occasionally raise the house 10° without producing any injurious effects; still, if the weather be mild, we would counteract this by giving air; if keen and windy, by shading. A temperature of 90° or even 100° caused by sunshine, is, however, productive of less injury than a keen frosty air.

"Management of Plantations.—In standard roses, suckers from the stock often shoot forth, and will impoverish the tree if allowed to remain. They should be watched for and invariably removed so soon as seen; if proceeding from beneath the ground, it is necessary to remove the soil, for which purpose a spade is best, and they should be cut off close to the stock from whence they spring. If this is strictly attended to for two or three years, roses will cease to throw suckers. On the specimen plants here, which are of some age, it is rare that a sucker is seen.

"At the same time that we are on the look-out for suckers, it may be well to have an eye on the heads of the trees, to establish a regular growth. Besides the shoots produced at stated periods-in spring and in summer immediately after flowering-it is not unusual, when a plant is in full vigour, for buds that have lain dormant even for a year or two to burst into life, producing very gross shoots. If such proceed from the summer kinds, they rarely flower, and, not ripening well, are of little use; if they arise from the autumnals, a large truss of flowers is often produced, but their quality is quite mediocre. In both cases, by drawing to themselves the nutritive juices of the plant, these gross shoots weaken the more moderate and valuable branches. But what shall be done with them? They are fine shoots, and it is a pity to destroy them. But if the plant is already furnished with shoots, it is certainly best to destroy them, by cutting them off close to the base, so soon as discovered. If, however, there are but few shoots, or a tree is ill-shapen, they may be turned to advantage. Under the latter state of things, pinch out their tops when they have reached an advantageous height, which the looker-on must determine, and thus they may be brought to fill up a scanty tree, or balance a misshapen one. But supposing, when such shoets arise, a summer rose has an abundance of vigorous shoots, or an autumnal is scant of bloom, though at the same time in such a state of health and vigour as to warrant us in concluding there is a sufficient command of food to support and develop existing branches and anticipated flowers, this may render it advisable to allow such shoots their natural course of growth, when the autumnals-and here we refer to the varieties of Rosea indica especially-often terminate with a large cluster of flowers. But, remember, the most vigorous shoots in summer roses are least likely to flower; in autumnals, they do not produce the best flowers.

"As a general rule, so soon as the flower-buds are formed, if we are seeking large flowers in preference to numbers, it will be well to nip out first those that seem imperfect, and afterwards such as are smallest and most backward. It has even been recommended to cut off the early flowers of the autumnals, on the ground that there is an abundance of other roses in June, and the practice causes a finer and more certain production in autumn. Yet we see no need for destroying the first flowers of the former. Let them bloom; and when the flowers drop, remove

the soil an inch or two deep for a good space around each plant, placing a spadeful of manure there. Cover this over again with the soil, and water the plants twice or thrice if the weather continues dry. This treatment will induce a fresh and vigorous growth, insuring as a consequence fine flowers. The secret of securing a good bloom of roses in autumn exists in keeping the autumnals growing during summer and autumn. Do this, and there is no fear of failure.

"After worked roses have been planted some years—say from six to ten—the health of the plants often becomes impaired; the wood annually produced grows weaker and weaker, and does not attain that maturity and size necessary for the production of fine flowers. The stems, unless washed occasionally, become covered with moss and lichens, and if the soil be at all inferior they probably cease to swell. Too little pruning will produce this state of things, but there are other causes. If we carefully remove a tree in this condition, we shall find it abounds in large suckerlike roots, about the thickness of one's little finger, almost destitute of fibre, and which have been burying themselves deeper and deeper in the earth every succeeding Thus they become placed farther and farther from the reach of nourishment, while the tree, increasing in size, requires a greater supply. The consequence is, the tree dwindles and becomes debilitated. This is especially the case where deep planting has been practised. When this state of things is visible, the plants should either be root-pruned, or, which is better, taken up altogether and replanted. Let this be done early in the autumn; and when the plants are out of the ground cut off all the suckers, and shorten the roots moderately close, which will induce an abundant emission of fibres. Prune the heads closely in spring; never mind sacrificing the flowers; the removal of trees of this age, and the shortening of the roots would alone prevent a perfect flowering the first season; look only to the formation of the tree. It is, perhaps, not advisable to remove the whole at once; let a few be thus treated every year, for the second year, after replanting, having regained their vigour, they may be expected to flower as beautifully as ever. Every rose-tree should be named. Wooden labels answer very well. They should be three-quarters of an inch wide, three inches long, and about the eighth of an inch in thickness. In one end of these a hole may be pierced with an awl, and copper wire passed through, by which they are fastened on the branches. Wooden labels are preferred for naming plants in the ground. If well painted, and the names written with a dark pencil when the paint is wet, the writing will remain plain for four or five years, and often much longer. When stuck in the ground, the lower end of the stick should be covered with pitch for an inch or so above the line of the level of the ground."

COOL TREATMENT OF ORCHIDS. - Our catalogue of cool country plants is at present very meagre, simply because we have hitherto lost them as fast as they came; but we look confidently to the enterprise of our nurserymen, such as Messrs. Veitch and Messrs. Low, to provide materials for a fresh start. Even under cool treatment, orchids require air, shade, and humidity, and will not succeed unless treated very differently from other greenhouse plants. A cool house ought always to face the north. Ada aurantiaca, Brassi Gireoudiana, B. cinnamomea, Cypripedium Schlimii, Epidendrum sceptrum, E. vitellinum, E. verrucosum majus, Barkeria spectabilis and Skinneri, Cycnoches barbatum (Paphinia barbata), Cattleya citrina, Comparettia falcata, Cyrtochilum maculatum, Disa grandiflora, Eriopsis biloba and altissima, Cœlogyne cristata, Lælia autumnalis and anceps, Lycaste Skinneri, Maxillaria venusta, Notylia bicolor, Masdevallia coccinea and tovariensis, Odontoglossum angustatum, O. aureo purpureum, O. bictoniense, O. cariniferum, O. Cervantesii, O. cordatum, O. crinitum, O. grande, O. læve, O. nebulosum, O. nævium majus, O. Pescatorei, O. Phalænopsis, O. pulchellum, O. pretiosum, O. Reichenheimii, O. Uro Skinneri, O. terrestre, O. stellatum, Oncidium ornithorynchum, O. leucochilum, O. tigrinum, O. Skinneri, Paphinia tigrina, Pescatorea (Huntleya) cerina, Sophronitis cernua grandiflora and pterocarpa, Uropedium Lindeni, Trichopilia picta and suavis, Warrea Lindeniana. The above include nearly all the American orchids with which we are acquainted, that not only delight in a cool house, but are worth growing in any house at all. A few more might, however, be added, such as Cypripedium insigne, Odontoglossum hastilabium, etc., to which a cool house is not essential.

TO CORRESPONDENTS.

Berberries. - J. J. Littlebourne. - The nurseryman to whom you refer ought to be able to settle the question whether your plant is or is not B. Nepalensis, as he has been so long acquainted with it, and has seen it in flower. We had seeds of unnamed Berberis species, through the Horticultural Society, some years ago, and got up some plants, which, however, were destroyed by frost before they flowered. Your doubtful plant may be one of that series, for the distribution was extensive. Nevertheless, we cling to the belief that it is Nepalensis, and shall be glad to see it when in flower. Accept our best thanks for the specimens forwarded.

Geranium Phæum.—N. C. L.—Your pretty plant is Geranium phæum, the Dusky Crane's Bill, well worth a place in the flower-garden, and thriving best in a sandy soil and a shady situation. It is a British plant, and quite common in the mountainous parts of England and Scotland.

VINES ON WALLS.—A. B.—Let your vine grow pretty much as it likes. You need not be anxious about the pruning of it at present. Over-anxiety about the pruning of vines leads to a good deal of mischief. Train out all the shoots, so that their leaves are fully exposed to the light, and your vine will acquire strength for future fruiting.

TRICOLOR GERANIUMS.—S. Steevens.—We have seen every variety that has been named and exhibited, not once or twice only, but again and again; and to pronounce which is best of them all, we confess is beyond our power. Moreover, the newest varieties cannot be obtained at less than from two to three guineas per plant, and a plant at such a price has only two or three leaves; so very few of our readers, we apprehend, need be immediately anxious to know which is the best. During the next few weeks we expect to visit all the nurseries where good collections are kept, and also a great many of the best private gardens, and the results of our inspections and comparisons shall be given in the next number. As you make particular mention of the splendour of Mrs. Pollock, as a bedder, we feel bound to say that, in our opinion, this variety is very ineffective out of doors. Goldfinch, Luna, Cloth of Gold, and Golden Chain, are far more telling; the first-named especially is most brilliant.

GRASS LAWNS .- C. C. - We have had many such queries as yours, and we have only to reply that if the proper means are persevered in, grass-plots and lawns may be made green and elegant anywhere. If daisies grow, and grass does not grow, we may be sure the soil is worn out. The best dressing then is guano or superphosphate of lime. If the grass is killed by trees overhanging, the bare places may be planted with a moss-like weed called Sagina procumbens, which soon forms a beautiful green velvety surface. If the soil is hot, and the grass perishes from drought, trial may be made of the medicinal camomile, Anthemis nobilis, which is an excellent lawn plant, vividly green, bears trampling and rolling, and spreads fast. Thus, you see, a person determined to make a grass-plot may have many methods to choose from. We have learnt by experience that good turf, transferred from the country to town, never thrives; therefore, in selecting turf for a town-plot, do not travel far for it.

THINNING GRAPES.—C. C. C.—Grape-growers should bear in mind a simple rule that has been again and again given in these pages, and that is, always to remove the smallest berries when thinning the bunches. These small berries should be removed first, and should be all removed; for if left they never attain full size, and are simply in the way of the swelling of the large berries, and rob them of the sap they want. When thinning, care should be taken to avoid touching the berries; the bunch may be held, and the scissors may be plied in amongst the berries, and yet not one left to swell need be touched at all. Sometimes contact with the beard or even the garments of the operator will cause the berries to rust. The grapes on your Chasselas crack in consequence of the dryness of the border. Soak the border three several times while the berries are swelling, and cease to water after they begin to ripen.

THE FLORAL WORLD

AND

GARDEN GUIDE.

AUGUST, 1867.

ROSES IN 1867.

E are so accustomed to speak of the unfavourable circumstances to which roses have been exposed, that we might almost repeat for 1867 the report of any previous year in the past nine volumes of the Floral World. If the reader should be curious on the subject, he will

find, no doubt, that in our annual reports we have invariably had to speak of untoward influences and unkindness of the elements, and more or less damage to roses, and consequent imperfections of exhibitions. The fact is, we always have bad weather at some time between the 1st of March and the 1st of July, and those four months are the most critical of the whole twelve in the growth of the rose; and the plant is too susceptible of injury by ungenial conditions of the atmosphere, to pass through any trial in its four months of special and peculiar activity without being hurt. In the year 1867, east winds, cold and dry, prevailed in April, and in the very middle of May we had a severe frost. June had passed and gone ere there was to be found in any part of England a truly luxurious bloom; even on the 29th, when the Crystal Palace show took place, there were so few good roses, that amateur exhibitors came to the mark with evident inefficiency; and in the stands of the greatest trade-cultivators faulty flowers were everywhere to be found. On the 6th of July, when the great Birmingham rose show took place, the flowers were just right. There had been a few warm showers two or three days previous to the show, and these rendered most seasonable aid. Throughout the whole of the vast display in the Town Hall, Birmingham, comprising thousands of flowers, there was scarcely a faulty one to be found, and certainly there was not one really bad collection, so even-speaking with proper reservation -were the contributions throughout.

Probably we have not done with rose shows yet this season. The Crystal Palace directors have had seriously in consideration the holding of an autumnal exhibition, but at the moment of writing this we are not aware if they have arrived at any decision. Certainly, an autumnal exhibition of roses might be highly serviceable,

as not only do we want to see what can be done in the shortening days, but there are many fine roses that are only fit for show in autumn; and, indeed, if autumn shows were held periodically, the Bourbon roses would immediately rise in popular estimation. Earnest rosarians are too apt, like other men, to look at the matter from one point of view only. It is true that roses may be brought together in abundance in autumn, but it is always a question if spectators can be found to appreciate them. We may be sure of this, that after the 12th of August, when Parliament will be prorogued, there will be an end of great gatherings in London, and a more precipitous rush of the wealthy, and indeed of all classes except the very poorest, to the scenes of rurality which severally attract townsfolk in the long vacation, than there has been for many a year past. Not that money abounds, but the excitement and wearisomeness of the debates on the Reform Bill, and the tremendous climax of the visit of the Sultan, the Pacha of Egypt, and the Belgian rifles at the closing of the season, will render rest and quiet doubly necessary; and we do not think there is any great chance of an autumn rose show meeting with such success as to cover the expense which must be incurred to render it effective.

But, leaving the question of an autumn show, let us consider what the customary exhibitions have done for us. We have particularly noticed, and the particulars given further on, under the head of "Gatherings from Exhibitions," will furnish the reader with the means of noticing, that a very small proportion of old roses have been shown this season, the newer kinds have almost wholly filled When we speak of old and new in this connection, we must be understood as going back only five years, at the utmost; more than nine-tenths of all the roses shown at the Crystal Palace, Kensington, Birmingham, and Hereford were varieties introduced within the past five years. We are dealing now with matters of fact, and if therefrom we may proceed to matters of opinion, we would venture to say that the thorough rosarian must soon fall in arrear of the fashion and the march of improvement, unless constantly adding to his collection the best of the newer varieties. The use of the word "fashion," in the last sentence, may tend to disguise or obscure our meaning. The truth is, fashion has scarcely any influence at all on the relative degrees of favour shown to any particular rose. If it is the best of its class, it goes to the front rank; if the worst, it is quickly discarded, and thus the exhibition becomes an unerring test of the merits of the several varieties for exhibition purposes, and we may be guided by the returns, if flowers of the finest possible quality are a desideratum. Exhibitors do not seek new varieties or old varieties when preparing for the exhibition; they simply seek for the best flowers, and if in the end we find the newer kinds to be predominant, we may pretty safely conclude that the newer kinds are the best.

Amongst the annual importations from the continent, there are always many bad varieties mixed with good ones; the trade are compelled to buy all, but very soon the process of sifting and selecting commences, and we are not long in learning which are the

kinds we may most safely purchase. But the amateur must always bear in mind that exhibitions afford only one test of merit, though in respect of that one nothing can be more satisfactory. We learn much about the qualities of individual flowers, but nothing at all about the habit of growth, constitution, and willingness or otherwise to flower freely. We must go to the garden for such information; and, therefore, such papers as we have occasionally from Mr. Prior, and other practical cultivators, are of immense value, and, if turned to the best account, tend to save the amateur many a wasteful outlay, and many a bitter disappointment. No one would conclude Louis XIV. to be otherwise but one of the most desirable garden roses from seeing a perfect bloom on an exhibition stand, for it is unmatched in beauty. Yet so shy is it to flower, that it is now rarely met with. So, again, no one would learn from an exhibition that Lord Nelson, Sir Joseph Paxton, Jules Margottin, and Anna Alexieff, are about the most free to bloom, and consequently the most showy, of all the roses in the garden; for as to the first two, they are now never shown at all; and as to the last, they have nearly had their day as show flowers, though still worth a place in the list of most select roses.

Amongst the newer kinds that have attracted special attention this season, we cannot forget the attractions of Madame Moreau, Marie Baumann, Miss Ingram, Madame Hoste, Exposition de Brie, Xavier Olibo, Maréchal Niel, Mrs. Ward, Alfred Colomb, Marquerite St. Amand, Princess Mary of Cambridge, and Thorin. More than these we might name as characterized by the highest qualities of show roses, but these are undoubtedly the cream of the additions made to our lists within the past three years. A few of the older kinds that still keep a place are so good, that we may almost indulge the hope, though a hope unpardonable, that they will never be beaten. At all events, we do not at present believe in the possibility of a supersession of Gloire de Dijon, Souvenir de la Malmaison, Jules Margottin, Devoniensis, Souvenir d'un Ami, Victor Verdier, General Jacqueminot, and some half dozen more; they appear to be so good, that anything better is beyond possibility, yet they may be all destined to give place to superior varieties in their several classes: for in rose-growing, as in all things else, we know not what a day or an hour may bring forth. But there are some old roses that still enjoy much favour with exhibitors—a fact which greatly surprises us, seeing that the kinds we have in our mind now are really bad, but maintain their popularity by their size and coarseness, such as Auna de Diesbach and Colonel de Rougemont. Surely, if these can be set aside, it will be a great benefit, for a perfect form is far to be desired above mere size and colour, as virtue and beauty are to be preferred to power and riches.

In comparing our various notes made at exhibitions and in gardens, we have resolved to recommend the following as the best roses in cultivation. No two cultivators will agree in every particular, but very few, we feel assured, among competent judges, will raise a question as to the desirability of the following having a place in every rosarium in Britain:—

WHITE AND LIGHT ROSE-COLOURED VARIETIES.—Abel Grand, Alpaide de Rotalier, Acidalie, Alba Rosea, Comtesse de Jaucourt (Cochet), Devoniensis, La Gloire de Bourdeaux, Josephine de Beauharnais, Louise Darzens, Louise Magnan, Madame Alfred de Rougemont, Mdlle. Marguerite Dombrain, Mrs. Rivers, Mdlle. Bonnaire, Madame Roussett, Comtesse de Palikao, Madame Stella, Madame Derreux Douville, Mdlle. Emain, Madame Gustave Bonnet, Marguerite de St. Amand, Mons. Noman (Guillot père), Princess Mary of Cambridge, Souvenir de la Malmaison, Fanny Petzold, Madame de MacMahon, Emotion.

CRIMSON AND DARK-COLOURED VARIETIES.—Admiral La Peyrouse, Abraham Lincoln, Alfred de Rougemont, Beauty of Waltham, Charles Lefebvre, Duke of Wellington, Duchesse de Medina Cœli, François Louvat, General Jacqueminot, Horace Vernet (Guillot fils), Lord Clyde, Maréchal Souchet (Guillot's), Monsieur Boncenne, Madame Moreau, Prince Camille de Rohan, Pierre Notting, Souvenir

de Wm. Wood, Thorin, Xavier Olibo, Vicomte Vigier.

PINK, RED, AND CARMINE-COLOURED VARIETIES.—Abbe Berleze, Achille Gonod, Adrienne Marx (Granger), Alfred Colomb, Baron Gonella, Camille Bernardin, Charles Verdier (Guillot père), Charles Rouillard, Comtesse de Chabrilland, Duc de Rohan, Duchesse de Caylus, Exposition de Brie, Fisher Holmes, François Lacharme, Glorie de Vitry, Ipswich Gem, Jéan Goujon, John Hopper, Jules Margottin, Madame de Cambacères, Madame Julie Daran, Mrs. Charles Wood, Madame Victor Verdier, Mdlle. Annie Wood (E. Verdier), Mdlle. Marie Rady, Marie Beaumann, Mrs. Ward, Senateur Vaisse, Victor Verdier.

YELLOW VARIETIES.—Celine Forestier, Gloire de Dijon, Maré-

chal Niel, Triomphe de Rennes.

We must refer to page 228 of last year's issue for descriptions of several of the newer kinds that have this season acquired leading positions, and that are most properly considered amongst the best of all roses known, such as Xavier Olibo, Madame Derreux Douville, Madame Stella, Duchesse de Morny, Exposition de Brie, etc. But we may properly conclude this paper with descriptions of a few which, as yet, have had no place in the Floral World, and are

now introduced to our readers for the first time.

Miss Ingram.—Medium size, perfectly globular, and exquisitely finished in form and colour. It is a member of the small but much valued group of which Mrs. Rivers and Madame Vidot are the two principal representatives. It has less colour than Mrs. Rivers, and a far more beautiful foliage than it, or than almost any other hybrid perpetual, the leaflets being long and glossy, and a rich dark green colour, with reduish foot-stalks. This variety was raised by Mr. Ingram, Her Majesty's gardener at Frogmore, and will be sent out in the coming autumn by Mr. Turner, of Slough. It is likely to prove the finest rose of 1867.

Madame Hoste.—This is a most beautiful variety, belonging to the same class of light roses as Mrs. Rivers and Madame Vidot. It appears to differ from all others in this class in its larger size, and a decided tone of lilac in the colouring. It is of free growth, and

blooms abundantly.

Madame Moreau.—A rather flat and perhaps quartering rose of large size, very fine stout petals, colour brilliant carmine crimson, shading to dark crimson, first-rate.

Duke of Edinburgh.—A fine deep crimson, great in substance,

and massive.

Exposition de Brie.—A large, deep crimson, varying to shades of carmine in the centre, and purplish outside.

The foregoing three are very much alike, but which is best of

the three it is impossible at present to say.

Alfred Colomb is most beautiful in form, and justifies all we said in its praise at page 228 last year. Colour fiery red, with silvery turn over, first-rate.

Michel Bonnet.—We see no merit in this, and hope it will meet with no encouragement. In form it resembles a wool mat for a

Charles Verdier.—Very fine form, the colour bright rose. have a place in every rose-garden.

Abel Grand.—Large and full, silvery rose, extremely beautiful.

Triomphe de Soissons.—Not so good as Emotion.

Prince de Porcia.—Large, full, almost a good form, but defective in a few points. In colour most remarkable, being brightest vermilion, and a very near approach to scarlet. This will quite supersede Evêque de Nismes.

Thorin.—Large, full, cupped, brilliant crimson, splendid foliage,

one of the finest of the season.

Ville de Lyon (Ducher).—Form globular, and as nearly perfect as in any other rose known. Colour dark rose. This is a real acquisition, though coming into a class where we have already many

Elizabeth Vigneron.—Large rosy pink, fine; sometimes coarse, but not more so than many varieties that are still considered first-

Mdlle. Margaret Dombrain.—Described last year from one flower which we saw when past its best. A very nice rose, of good globular form, the colour delicate blush.

Marguerite de St. Amand.—Large, full, most beautiful form, colour bright pink; one of the finest roses in its class, and quite

essential in every collection.

As our old friend, General Jacqueminot, is a great favourite, and was last year threatened with eclipse, it may interest many of our readers to know that it has been exhibited in an extraordinary degree of perfection this season. Mr. Cranston had one in his first prize, 72, at Birmingham, which measured five inches over, was completely double, with enormous shell-like petals, and the colour nearly black. King's Acre, too, has been good this season, and has been shown in very many stands. As for Maréchal Niel, it is always good; and the best flower of the year was one shown in Mr. Hedge's 48 at the Crystal Palace. Respecting the much talked-of yellow perpetual, nothing definite has been heard or seen, and we must live as best we may on the delightful and, perhaps, delusive rumours.

PLANTS ADAPTED FOR THE PLUNGING SYSTEM.

SHALL endeavour now to redeem my promise of presenting to the readers of the Floral World a catalogue of the plants employed in the plunging system at Stoke Newington during the past ten years. I shall premise that the reader understands what is meant by

the term "plunging," and is familiar with what has been already written on the subject. I must further premise that whatever will suit the taste of the cultivator at the moment of arranging a display may be used, provided there is no danger of injury by exposure to the weather. Thus, if at the present time I had a house full of show pelargoniums in flower, I might turn them out and arrange them in beds, plunged in cocoa-nut fibre, and I should have a brilliant effect at once. The plants would not be injured, and they would probably continue to present a gay appearance for about a month (this depending on the length of time they had been blooming before being put to this purpose), and would then need to be housed again, and their places supplied with other plants. We make many changes, and use all sorts of things. Once this season I had a fine bed of ferns, with a few elegant flowering plants intermixed, and the effect was delightful. Lastly, in respect of these preliminaries, it must be remembered that the display is made in an entrance-court expressly prepared for it, the borders consisting of cocoa-nut fibre for plunging, having good backgrounds of hollies and other evergreen shrubs, and supported in front with beautiful mouldings in Ransome's Patent Stone. That all the plants are grown in pots is, of course, superfluous information; but it cannot be superfluous to remark that they are grown somewhat differently to the style which would be best for any other display. For example, a considerable proportion of the geraniums are never pruned at all. The consequence is, we can make up beds of geraniums of any height we please, but usually plants of three to four feet are most valued, and our giants were not long since intentionally destroyed, because of the trouble occasioned in wintering them. On the 15th of May we had a bed of geraniums in full bloom, and of all colours intermixed; the group rose from plants of Christine a foot high at the edge, to plants of Hibberd's Pet, Stella, Purple Nosegay, Pink Beauty, and Galanthiflora, four feet high in the centre—a magnificent spectacle, a month at least in advance of the planting of bedders in the ordinary way; and as to the display of flowers, a gain of two months certainly; and then no ordinary bed, with its flat, uniform colouring, could compete with this grand cone of mixed colours. As geraniums have obtained mention, we may as well begin with them.

ZONALE GERANIUMS are the most useful of all the plants that have been incorporated in our system. There is just one particular reason, too, why we make a display with these in a manner probably never seen before, and it is that we turn to account the whole of our seedlings, except such few as are selected for other and more

recondite purposes. Perhaps I should add another reason, that the collection of zonales comprises always some 500 different varieties, and that, therefore, there are plenty of plants to operate with, as of some of the sorts we grow a dozen or two, and of others only two or three. Now, I am always anxious to place our amateur readers as nearly as possible on a level with myself in respect of any advantages which attend the systems followed here, and I will briefly state what is the best method to get up geraniums for a grand bed of mixed colours, grouped as a pyramid, the plants rising from a few inches to four or five feet high. Collect from all the best kinds at once a quantity of seed. Give the preference to such as Dr. Lindley, Magna Charta, John Hampden, H. W. Longfellow, Pink Beauty, Lady Middleton, May Queen, and others of robust constitution, and that make fine flowers. Do not save much seed of such flimsy sorts as Christine, as they make poor pot-plants. If you have plenty of glass, and can keep a few hundred small plants through the winter, sow the seed as soon as ripe, and in due time pot the plants in the smallest pots, and winter them in a warm house near the glass. If not well off in respect of glass, sow in February or March, place the seed-pans in a gentle heat, and grow the plants all the summer in a greenhouse or frame, and get them into 60-sized pots before the end of August. In March following, shift them into 48 size, and, as they fill these pots with roots, shift again to 32 size, and in this size let them flower; they are all to be allowed to grow as they please, no stopping, no pruning. In the course of the second summer—that is to say, in about fifteen months from the time the seed was sown—they will flower. We flower a great many in less than five months from the time of sowing the seed, but we say nothing about such things now, because it is desirable to adapt these notes to the circumstances of the majority of private cultivators. All the seedlings should remain one full year in the 32-sized pots, and after that term should be shifted on to 24 size, or otherwise disposed of as may be considered most expedient. The system of cultivation proposed will produce robust plants varying from two to five feet high, with fine heads, and abundance of flowers of all colours. When packed close together to form a group, the colours being mixed indiscriminately, their appearance will so far surpass all other geraniums, that a revolution in the district is pretty sure to follow. The seedlings are our stronghold for plunging effects, and it is so easy to raise geraniums from seed, that I recommend all who take to plunging to accompany it with this great aid to success.

CALCEOLARIAS.—Select the kinds for compactness of habit. The best we have used are Canariensis and Gem. The last named is a bright yellow, and is the best of all the bedding calceolarias. To make fine plants, get some frames, and make beds of half leaf-mould and half sandy loam, and put in the cuttings in the first week of September; there let them remain all the winter. At the end of March take them up carefully, and pot them in 48 size, using nothing else to fill in except quite rotten hot-bed manure: it must be rotted to dust. After potting, shut them up close, and give

regular but moderate supplies of water. Do not at any time wet the leaves. After a fortnight give air, and at last expose them fully. By the middle of May, when other people think of beginning to plant, yours will be in splendid bloom, and, as you will have plenty of geraniums, you can at once begin summer colouring, not having to wait two months for flowers, as must always be the case with the

bedding system.

LOBELIAS.—We find it necessary to push these on early, and stop them frequently, in order to obtain large plants that will quite cover their pots with flowers. The favourite Specioa and Paxtoniana are the best, but all are good; perhaps Blue King would be of great value for margins to mixed beds. Very fine plants may be grown in 48 size, but we always have a few specimens in 32 size, with heads eighteen inches across. In growing these we use three parts manure rotted to powder to one part of sandy loam, and give abundance of water.

LARGE FLOWERING PELARGONIUMS are, as a rule, not at all well adapted for this work, but a certain few of the class called "market flowers" are of great value, because of their abundance of colour, and, generally speaking, stiff habit of growth. One of the best we have is Colleen Bawn, which produces vast quantities of bright lilac-coloured flowers. We also use Gauntlet and Brilliant, and, in fact, have some of these out now (July 19), being their third bloom this season. They were forced into bloom in January last, went out of bloom in March; bloomed again at the beginning of May, and were then put out, lasted three weeks, and were then slightly cut back and put in a sunny house, and have just burst into bloom again. The plants of Colleen Bawn, that were out all through the month of June, and until the Gauntlets lately took their places, have been slightly cut back, and are in a sunny house, to make a fresh bloom by the time the present Gauntlets are over. A dozen or two free blooming kinds, with brilliant flowers, may be easily selected from a good catalogue, or collection. Perhaps I may be able to present further lists hereafter.

GLADIOLI are not first-rate for the purpose, but they come in at a season when they are likely to be useful. The best sorts for the purpose are Brenchleyensis, Monsieur Blouet, and Bowiensis. I strongly recommend that no other kinds be grown for plunging until the cultivator has first tried a few to see how they answer, but the three recommended are all that can be desired. Put three bulbs each in 32-sized pots, using turfy peat chopped up with about a fifth part of its bulk of sand. In potting have on the bench a heap of dry flakes of old manure, and put a little of this over the crocks instead of moss. When the potting is completed give no water, and put the pots in a frame or greenhouse, where they will be always in sight. When the green blade has grown an inch, begin to give water, but very sparingly. Increase the supply as growth proceeds. Put the pots out of doors, plunged to the rim in cocoa-nut fibre, after the first week in May, and give abundance of water while the flower spikes are rising. As soon as they begin to show colour, take them to the spot they are to decorate, and mix them with plants that will compensate for their general leanness of appearance. In about four weeks after the flowering is over, put them in a sunny frame or greenhouse, and give no more water; that is to say, compel them to ripen and rest. Shake them out as soon as the leaves begin to turn yellow, and spread them on boards or cloths in the full sun in a greenhouse for a few weeks, and the bulbs will become hard and ripe, and well prepared to flower freely the next season. We have given up growing gladioli for plunging, but we gave them a fair trial, and took in hand a very large proportion of all the varieties in cultivation.

IXIAS AND TRITONIAS are not to be thought of for this purpose, as a rule. For three years we grew a large collection, and most beautiful they were, yet not at all good plants for plunging. But here is something worth telling: Last winter we potted, as usual, the collection. All were protected from frost, but very early—middle of March, or thereabouts—all were put out to rough it. Tritonia aurea and Tritonia crocata, the two most beautiful of all, were found amongst them, rich with flowers, in the first week in June, and were made use of. It was observed that they were very short in growth, very showy in colour, better every way than we have been accustomed to obtain them by ordinary greenhouse or frame cultivation. I do not strongly recommend them for plunging, but they are interesting and beautiful, and very well adapted for the

Tansy.—Common tansy is too coarse a plant for our purpose; but there is a variety of it, called Tanacetum crispum, which Mr. Salter has true, which we have found to be of great service. Some years ago, a bit of this plant was put in a border, and it spread fast and far, and became somewhat of a nuisance. In the spring of the present year, when I saw it coming up, it struck me that its exquisitely-rich green leaves, almost equal in beauty to that most beautiful of all ferns, Todea superba, might be of some value for plunging, so I had a lot of it potted in 60 size, and very soon afterwards they were appropriated for an outside edge to a group in the jardinet, and had a most welcome and refreshing appearance. As an edging to a bed of Mrs. Pollock, or any other strong coloured leaf plant, this beautiful tansy would be, perhaps, the best plant that could be

found.

Variegated Willow Here.—This is a strange plant for such artistic work as ours, but now we have adopted it, we shall not be able to do without it—its beauty is so peculiar and seasonably useful. Some years ago, I had from Mr. Salter what I think he called Epilobium hirsutum, a variegated form. It was planted with other such things on a rockery, and in due time formed a most elegant patch, and proved to be Epilobium parviflorum. In the spring of the present season, when our old clump began to push, I had a lot of rooted pieces potted in small pots, and placed on a bed of coal-ashes. They soon began to grow, and were very green, so much so, that I thought I had made a mistake. But by and by the variegation broke out beautifully, and they are now in 48 size, neatly tied to slender stakes, and are exquisitely delicate and

bright, having the most brilliant creamy variegation, in the midst of which sit the pretty rose-coloured flowers. The poorest soil was used -we keep a heap of old stuff shaken out of pots, on purpose for any special work of this kind; rich soil would spoil the variegation of this plant. The particular purpose to which this plant has been adapted may be worth explaining. Wishing to go through the geraniums carefully, to make notes, write new labels, etc., etc., 1 have had the whole collection arranged in groups in another garden, away from home, where I can spend a few days amongst them, free from risk of disturbance. In the meanwhile, as we have been excessively gay with flowers since the end of February last, when we began with crocuses, snowdrops, and hyacinths, I determined to have a display of leaves. Accordingly, we prepared a sufficient quantity of the following, having long foreseen that we should want them: Coleus nigricans, Coleus Verschaffelti, Iresene Herbstii, and all the new Alternantheras and Teleiantheras, for though these are here on trial as plants, we could not dream of allowing them to waste their sweetness on the desert air.

The manner in which the willow herb is used is this—a circular bed, consisting of a large block of the willow herb and Iresene Herbstii, plant and plant all through, then a bright circle of Mrs. Pollock geranium, and an edging of Alternanthera spathulata. However, this particular plant is invaluable, and, if any trouble about obtaining it, send an order to Mr. Salter for the variegated Epilobium, and you will obtain it true. We could make a thousand plants easily from our clump on the rockery, and I fancy the way

we have managed it is the best possible.

Sedum spectabile.—This is the plant frequently described in these pages as Sedum fabarium, but spectabile is its proper name. It is the easiest plant to grow for plunging ever heard of. Now that we have a good stock we no longer take cuttings, but divide the plants every spring as soon as they begin to grow. We get heads fifteen inches over in five inch pots, and they never have any shelter; it is, in fact, one of the hardiest plants in cultivation. Our whole stock, which is a large one, has been used three times already in grouping, for the sake of its foliage; but its proper season will be September, when the flowers appear, and are extremely welcome for

their curious shade of creamy pink.

Tall Lobelias.—Having for several years given up the cultivation of Lobelia cardinalis, and others of that section, I was amused to find that Mr. Bull, of Chelsea, had taken them in hand for improvement, and I took in hand a dozen new varieties sent out by him, the price of the set of twelve being fifty shillings. They have proved marvels of beauty for fine habits of growth and brilliaut flowers. Here they will take the place of gladioli, and give less trouble. The way to manage these is to grow them in rich soil, and with ample pot room, and give abundance of water, keeping the plants in a cool house from October to April, and out of doors all other times. Those who are not disposed to buy Mr. Bull's new varieties at five shillings per plant, may do very well with the old varieties at sixpence each, for they are all good; the

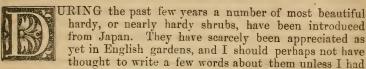
one only point requisite to do justice to them is to grow them

liberally.

Next month I shall proceed with the list, but I do not expect I can fairly finish it until towards the end of the year. S. H.

SOME JAPANESE PLANTS SUITABLE FOR ENGLISH GARDENS.

BY KARL PROSPER.



seen lately, in visiting a garden, a great collection planted out, and such a beautiful appearance they presented, that I thought them far more entertaining than the most splendid flowers. The lustre of the leaves, the interesting forms, the variety of character—all impressed me, and, though so familiar with these plants that I may truthfully say I have propagated tens of thousands of them, yet they seemed all new to me, for this was the first time I had seen

them generously dealt with and tastefully displayed.

The proprietor of this garden had formed what he called a "Japanese ground," which is quite as reasonable a proceeding as the formation of an American ground. In beds of various kinds of soil he had planted various Japanese shrubs, the system being to use three kinds of soil -say, No. 1, good turfy peat; No. 2, mellow, silky, yellow loam; No. 3, poor sandy loam, with a large quantity of sweepings of gravel walks added to render it still more gritty. All the Skimmias were planted in pure peat, with a few variegated plants intermixed to enrich the bed. All the robust-habited, greenleaved shrubs, such as the green Osmanthuses, were planted in pure mellow loam of a nourishing kind. Lastly, between the beds of green plants were beds of the gritty stuff, filled with variegated plants. Thus the requirements of each were met, and taste was consulted too. I leave it to the reader to discover how best to appropriate these plants, contenting myself with offering a few notes upon those which are most likely to be useful.

AUCUBAS.—The newer kinds are, in many instances, remarkable for the beauty of their leaves, and they will grow in any soil. It a male plant be put here and there in a group, there is no doubt the females in the same groups will all bear berries, without the necessity of being fertilized. At all events, I have found this to be the case under glass; for I have seen half a dozen large plants bear berries where there was only one small male in flower, and only one spike of flowers produced. The most beautiful of the new Aucubas are the following:—A. famina viridis, a glistening green shrub of rapid

growth and much beauty; interesting, too, because it is the original or normal form of the common aucuba of our gardens. A. f. lancifolia variegata, with an elegant margin of gold; A. f. elegantissima, rich yellow blotch; A. f. macrophylla, an enormous leaf, of a light spinach-green colour. Of males the best are, A. mascula bicolor, leaf with broad stripe of yellow; A. m. varia, with bright yellow blotch; and A. m. maculata, richly spotted. It must be remembered that all the plants of these new aucubas sent out from the nurseries are grafted on the common aucuba. In planting them out, therefore, plant rather deep, so that the scar will be covered; and if suckers arise from the roots, destroy them.

OSMANTHUS ILICIFOLIA.—Of this plant there are several varieties with green leaves and variegated leaves, and all are beautiful. The lover of interesting plants should certainly have a few of each kind, but I do not think, while we have the hardy and beautiful holly, that any osmanthus is entitled to very high conside-

ration.

EURYA LATIFOLIA VARIEGATA.—An extremely beautiful and distinct shrub, the ovate leaves highly variegated with cream colour. The young leaves are glossy brown, the shoots deep purple. When this becomes large it is a splendid object; therefore, I advise it to be planted out in a sheltered spot in poor soil. It may be propagated by putting cuttings in a frame in July and August, and is well adapted for pot culture for the conservatory.

ILEX FORTUNEI.—An insignificant plant, not worth a place anywhere except in a botanic garden. It has one good quality—it will grow anywhere, in sun or shade, in rich or poor soil, and soon makes

a thick tuft.

EUONYMUS LATIFOLIA AUREA.—This bears so many different names, that I am not at all sure it will be found under the name I give (and which is the proper one) in all the nurseries. First of all, procure the old and well-known Euonymus Japonica, with golden leaves, then look for a plant with larger leaves, of a much brighter gold colour; and if you succeed in finding it, you will have E. latifolia var. aurea, one of the most beautiful variegated plants known. Take cuttings of this in August, and shut them up in a frame, and in due time you will have nice plants. It is a fine subject to form an edging to a compartment of shrubs, also to decorate the conservatory in winter. One called Aurea marginata is very boldly marked with creamy edges.

EUONYMUS RADICANS VARIEGATA.—This may easily be obtained true. It forms a brilliant edging to a bed if pegged down, and is largely employed in this way in Battersea Park. Strike cuttings in August. It is as hardy as a holly, perhaps hardier than some

hollies.

Berberhopsis corallina is a free-growing dark green climber, which produces handsome red flowers. I have seen it thriving on open walls in the south and west of England; and where it will not endure the winter exposed, it is well worth a place in the conservatory to cover a wall or pillar.

ELEAGNUS REFLEXUS .- Elegant in growth, and forming a half-

weeping bush, the ovate leaves richly margined with amber or cream colour.

RETINOSPORA LYCOPODIOIDES.—A lovely little bush, of a dark green colour, the growth of which resembles that of a dense selaginella. I have not seen it grown well in pots, but I am quite sure that, with proper care, it would make a superb pot plant.

RETINOSPORA OBTUSA.—This forms a large tree, and is one of the most beautiful of all the recent introductions from Japan. In style of growth it bears some resemblance to Cupressus Lawsoniana. It

is certainly hardy.

Thujopsis dolabrata.—One of the most distinct, hardy, and beautiful coniferous trees in the world. It is too well known to need to be described, but the variegated form, every growing point of which is of the brightest gold colour, should be found in every

choice garden.

Bambusa Fortunel.—A beautiful hardy bamboo, with creamy striped leaves. Fine for an edging to a large bed, and fit for a hundred purposes. A few days ago, I saw this in great quantity in a nursery where plants are grown for market. I asked, "What do you want with this?" The answer was, "To cut for bouquets—one of the best things in that way we've got." It is of small growth, rising a foot at the most.

All the foregoing are adapted for the choicest gardens, and they have the advantage of being quite hardy, and, once planted, will

increase in value from year to year.

LASTREA ÆMULA.

HIS scarce and beautiful fern rarely succeeds under cultivation, and hence we do not often meet with it in cultivation, or in collections of ferns at exhibitions. Numerous as are elegant plants amongst the species of ferns, few equal or surpass this in elegance, whether we

note particularly its finely-divided, bright green fronds, or the gracefully half-pendant character of a fine specimen. It is the "hayscented" or "triangular prickly-toothed buckler fern" of the rustic herbarium; but as it is not the only hay-scented or prickly-toothed fern we have, such designations are delusions. In Newman's "History of British Ferns," it is described under the name of Lastrea recurva, elsewhere as Polypodium æmulum, and Lophodium fænisceii. It has a stout, tufied caudex, and long, stout, wiry, dark brown roots. The stipes, usually about half the length of the frond, brownish purple, the rachis greenish, and stipes and rachis beset with small spherical glands. Fronds twelve to twenty inches long, rich bright green, drooping, gibbous lance-shaped or elongate triangular. The pinnæ opposite or alternate, the pinnules oblique, oblong, more or less pinnatifid, the margins lobed and toothed, the whole frond having a delicate crispy appearance. The fructifica-

tion covers the whole of the under surface, and consists of round, brown spore cases, which add much to the beauty of this fern. It is evergreen, widely distributed, but only attains to a luxuriant condition of growth in mild, moist climates; hence, though occasionally met with in the east of England, it is never so beautiful as in



LASTREA ÆMULA.

the west. This circumstance gives the key to its cultivation. On the open rockery it rarely thrives, except in districts where it is found wild, in good condition; but in the cool fernhouse, or the Wardian case, it grows freely, and requires absolutely no care beyond a needful supply of moisture. If never visited with a breath of air. it is none the worse; and, on the other hand, exposure to wind is decidedly injurious to it. Some years ago, when planting an artificial cave, under glass, with ferns, we inserted a plant of Lastrea æmula in a rather dark and obscure chink, where it could only be seen by looking for it. Now it protrudes beyond the opening, and throws out a graceful tuft of its elegant fronds in a most pleasing manner, and proving that the selection of a damp, shady, sheltered place is a matter of the first necessity in its cultivation. As to soil, light loam, with plenty of silver sand and pounded stone, will suit it The plant just referred to had not more than a handful of soil to begin life upon, and probably has insinuated its roots amongst the stone and brick of which the cave is constructed, and so has soil enough in what one may call the heart of the rock. The dried fronds emit an agreeable hay-scent for years after the date of gathering them. S. H.

MANAGEMENT OF WINDOW FLOWERS.

BY JAMES COLDWELLS.

HAT even the successful cultivation of plants and flowers may be carried on in densely-populated neighbourhoods has been many times satisfactorily proved. Don, in the Gardener's Dictionary, tells us that the Paisley weavers had increased the varieties of the garden pink to such

an extent, that they enumerated 300 varieties of the Pheasant's-eyes alone. Carnations, dahlias, auriculas, tulips, and many others of the florists' flowers, have owed much of their popularity to the successful cultivation of town growers. If any one will take the trouble to walk through Spitalfields during the season balsams are in bloom, he may see specimens in some of the windows which would not disgrace a gardener. Last year some of the best chrysanthemum flowers of the season were produced in the Hackney Road, amid the dust, dirt, and smoke which abound in that neighbourhood. So that those who live in the most out-of-the-way places need not despair, for it is only necessary for them to take the trouble, and to set about it in the right way, in order to have their living rooms enlivened by the presence of green leaves and even flowers.

Of course plants grown in windows require a great deal more attention than those grown in the garden, the reason of which is obvious; but the chief conditions necessary to their remaining in a state of health are a good compost to grow in, a good supply of air, plenty of light in the day, darkness and coolness at night, cleanliness, and a proper amount of moisture at the roots. We have not space to enlarge upon all these heads, but refer those who want all the minutiæ to the "Town Garden." It would be useless to

give any elaborate directions about the compost, as most of the Londoners have little choice in the matter, and must take an excursion to the outskirts in order to procure the supply they require; but there are a few things in reference to plants generally which are grown in windows, and by failing to give attention to these little points of management, many persons who have no confined space nor dusty atmosphere to complain of are unable to find success in growing their little favourites. One of the most important points is the watering; there should be plenty of crocks in the bottom of the pot, so as to allow the water to pass off rapidly, and thus ensure perfect drainage. This is one of the few rules without an exception, as there is not a single plant I know of suitable for window culture which will flourish if the water is allowed to stagnate at the bottom of the pot. Never allow any water to remain in the saucer. How often does one see the window plants of our acquaintance standing in a pool of water in the saucers; when plants require watering give them plenty, so that the roots have a thorough soaking, but pour away that which runs in the saucer; and if your plants require a great deal of water, give it them often, and don't compel them to suck it up through the hole in the bottom of

the not.

During the day-time plants should have plenty of light, not necessarily sunshine, as that may be frequently injurious, and it is better to shade on very hot days, but plenty of daylight, for plants cannot thrive without it. Therefore let the plants stand as close to the window as possible, and keep the glass rubbed clean; if this is attended to, and the pots turned round a little way every day, you will be able to grow the plants a good shape; but if they are grown at a distance from the light, the points of the shoots and all the leaves will turn themselves towards the window, and thus present a curious but by no means graceful appearance. At night they should be in the dark, and kept cool. You know that plants in a state of nature are cooler at night than in the day, and therefore those grown in windows should be cooler. But it unfortunately happens that most living rooms are considerably warmer, at least during the early part of the night. This is caused by light, firing, and there being mostly more persons in the room, or at home, at night; consequently the plants stand a fair chance of being injured, and if they must be grown in that room, there is no help for it but standing them down on the floor in such a position that they may be shaded as much as possible from the artificial light, when they will be in a cooler position than they would be if they remained on the window-sill. It is these two reasons, want of light, and too much heat at night, which makes town-grown plants so lanky-looking and sickly; but with proper precautions most persons will be able to produce specimens of a natural form and in good health.

Give plenty of eir. Those who are fond of rising early in the morning, and taking a walk in the fields and woods, will have frequently noticed the rustling of the leaves in the morning breeze. Every one has remarked the leaves of the trees on a sultry day, drooping under the heat of the sun, motionless and desponding, but

every one has not noticed how totally different their appearance is in the early morning; even when there is not enough wind to feel the least breath upon your face, you may perceive a constant agitation going on amongst the leaves, making the sunbeams glitter on their tright surfaces, moving to and fro, and dancing and sparkling as though they thoroughly enjoyed their gambol with the zephyr which refuses to woo your own cheek. And they really do enjoy it, for the leaves are the lungs of the plant, and therefore a plentiful supply of fresh air is as necessary to keep it in health as it is to a human being. So never be afraid of keeping the window open, but do it as much as possible when the weather is not cold, and it can be done

without exposing them to a thorough draught.

Another matter of the utmost importance is cleanliness. Persons living in the country can have but little idea at what an astonishing rate the dust accumulates in London, or in any large town where there is a great traffic. In fact, the dust is one of the greatest enemies of the city house-wife—the dragon with which she has constantly to do battle with duster, scrubbing-brush, and flannel. A very short time suffices for the leaves of a plant to get covered with dust, and if not frequently removed they turn brown and wither, for it effectually stops those processes from going on which are equivalent in a plant to breathing and perspiring, by stopping up the pores of the leaf. The best way of removing it is by frequent washings with clean water, which has just got the chill off, and a flaunel or sponge is the best thing to use for the purpose. This operation can scarcely be performed too often, if done with sufficient care; and it is quite delightful to see how refreshed and invigorated your pets will look after their periodical washings. Whenever an opportunity occurs, place them out in mild showers, when they will receive a benefit which can be scarcely imparted to them by any artificial means. Let us hope that the time is not far distant when every one, be they ever so poor or ever so badly off for want of space, may be able at least to grow a few plants of their own, and cultivate their window-gardens; for although it may frequently provoke a smile of ridicule or a gesture of contempt to see a poor long-legged geranium growing on the window-sill of some wretched home, in a cracked tea-pot; yet still it ought to tell the reflecting mind one thing, that in that locality there beats at least one heart who can appreciate the beauties of nature, that, did more favourable circumstances surround it, would revel as much as you do in the joys which are to be found in green fields, shady woods, and flowery Those poor, weak, miserable-looking objects, fit only we should consider for the muck-pit, are not cherished because of the beauty of their appearance, but because they whisper to them of those enchanting scenes of nature which it is so seldom their good fortune to witness.

THE VILLA KITCHEN-GARDEN.-No. II.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



HE WALKS.—The proper width of walks should be decided by the extent of the ground. If the garden is one acre in extent, then a five-feet walk ought to be formed, but if the garden is only half that size, then a four-feet walk must suffice; but anything less than

four feet I do not advise. With a narrower walk than this the garden is cut up, and appears to be really of less dimensions than it is, as a narrow walk is sufficient in itself to create the idea that the extent is limited, and in the case of a villa garden it is a matter of the first consideration that we should make the most of its dimensions, for without creating such evidence of the fact, there are too often many other unavoidable circumstances which force upon the

eye the reality of its limited extent.

BORDERS.—As one of the first essentials to a well-arranged garden, I have made ample provision for borders, as a long course of years of experience has convinced me of their utility for working, and of their value for many crops. In the first place, I have (see page 201) shown borders all round next the wall. These are generally called walled borders. Then follows the walk, and next this a marginal border. Ten feet is the proper width for a walled border, but the width of the marginal borders must be decided by the purposes for which they will be used. On the design I have supposed the width to be four feet, at the extent of which are rows of black dots, showing the positions of lines of pyramid trees, either grown on dwarfing stocks or subjected to root-pruning. But if fruit-trees are not grown there, then a distance of three feet from the walk will suffice for ordinary low-growing crops of vegetables and herbs.

ARRANGEMENT OF FRUIT-TREES.—If pyramid fruit-trees are used, I should advise they be planted as recommended above in the positions shown. On the south side, pears. On the north, apples. On the east and west, plums; in the space marked figure 1, raspberries; at 2, white and red currants; at 3, gooseberries. On the north border at figure 4, late raspberries; at 5, black currants; at 6 late strawberries. On the south border, 7, early strawberries; at 8, successional strawberries. The south wall should be occupied with peaches, nectarines, and apricots. The north with plums and Morella cherries. The west with early cherries and figs. The east with pears. By these last directions I mean the wall looking south should be furnished with peaches, etc., and so on throughout.

ARRANGEMENT OF SOME OTHER PERMANENT CROPS.—On the east border at figure 9, rhubarb; at 10, sea kail; at 11, globe artichokes; at 12, Jerusalem artichokes; at 13, horseradish; at 14,

asparagus beds.

ARRANGEMENT OF ANNUAL CROPS.—At 15, early peas; at 16,

early lettuces; at 17, early seed beds; at 18, second crop of peas; at 19, early carrots; at 20, dwarf French beans; at 21, parsley; at 22, herbs; at 23, seed beds for winter subjects, and small salading; at 24, second crop of French beans; at 25, second crop of lettuce; at 26 is a vacant space, left unoccupied on the north border—that is to say, the border looking north. This is for the purpose of having a cool spot to grow such things as lettuces, radishes, French beans, etc., which do not succeed well in

the open quarters during very hot weather in summer.

THE MAIN QUARTER.—We have now to deal with the principal portion of the main quarter of the garden. But as different families differ in the extent of their requirements and tastes, in respect of the various kinds of vegetables, I can only shadow out a few general suggestions from what my experience leads me to believe will be essential to the majority. In the first place, I may state that, generally speaking, the villa garden does not furnish space to admit of potatoes being grown in sufficient quantities to supply the wants of an ordinary family throughout the year. Knowing this, I purposely confined myself to a limited space when designing the plan, well knowing it would only cause confusion in the mind of the reader if I dealt with the plan under an extensive scale, which could not be carried out in practice in a villa garden: therefore, in the following remarks which I have still to make under this head, as well as under the rotation of crops, the reader will not expect that I should provide for a large supply of potatoes. As one of the principal crops which will be used in filling the space which is left uncropped, the summer and late crops of peas will take a prominent part, and to deal with these (especially the tall growing kinds) in a profitable manner, no two rows should be nearer to each other than ten feet; in fact, it must be so if you want to see the character of the sorts, and obtain a good return. I shall therefore assume that ten feet is the distance provided between the rows, and supposing that the width of this piece of ground with the rows standing north and south is such, that one row is enough for a single crop. I should mark out the distances early in March for six rows at ten feet apart. This will give six successional supplies of peas, beside the earliest; and if the first sowing is made on the 1st of March, and successional crops about every twenty days, this will carry the last sowing on to the last week in June, which is the latest date that late sowings of peas can be depended on.

Having marked out the positions for the peas on the 1st of March, three rows of early potatoes should be at once planted between each two rows of peas. These, at two feet apart, will leave a clear space of four feet to each row of peas. The first two rows of peas sown may probably retard the potatoes between them, but the fact that the latest crops will not be sown until the potatoes are nearly fit for use (and in some localities quite fit), those that were retarded by the peas will have plenty of time to mature their growth, and will be ready to come off the ground as soon as the peas. Thus is secured two different crops from the same space, and, what is important to remember, both crops are off in ample time to secure a

change of subjects for the winter. But we shall deal with this cleared ground more at length under the head of Rotation

Cropping.

Next the peas should follow as many more early potatoes as the ground will admit of, or the family will be likely to require; and then come the onions, carrots, and parsnips in continuous beds, also beetroot, salsify, and scorzonera. These last two are not popular vegetables, but with some families they are much esteemed. The first planting of the autumn-sown cauliflowers, saved through the winter, may be put out between the asparagus beds, and the second should follow the other crops on the main square; and next these, summer cabbages, leeks, Brussels sprouts, scarlet runners, turnips, savoys, broad beans, vegetable marrows, and any other vegetables that may be required which are not named above.

But no one should regret seeing, for the space of a week or two, a piece of ground unoccupied (during summer), so that it is trenched up, that the elements may play about it and pulverize its substance, thus rendering it much more genial and sweeter for the next crop, because the roots of all plants need the assistance of these natural purifiers, to replenish the ground again with those agencies

which the previous crop exhausted it of.

ROTATION CROPPING.

This is of such importance in a villa garden, where space is limited, that on it depends much of the success of the cultivator, although it cannot be carried out with any degree of precision where space is short, as it can in places of more extent. The principal rule to be observed, as far as possible, is for all land that has been cropped with cauliflowers, brocoli, or cabbage, to be followed with potatoes. Failing these, scarlet runners or broad beans. Celery should follow peas, which, after a short crop, the next year comes in admirably for brocoli or any kind of winter stuff. Onions are best followed the same autumn by cabbage. Turnips should either follow beans or peas; they are not so well to follow any of the brassica tribe. Carrots in old gardens are very particular subjects; a plot of ground ought to be trenched every year early in winter, and be allowed to remain until sowing-time. When the winter spinach is destroyed, a liberal dressing of lime is beneficial to cause a speedy decomposition of all organic matter. The ground then becomes vacant in ample time for scarlet runners or for vegetable marrows, and ridge cucumbers for pickling. Savoys succeed best on ground that has been exposed all winter. They should follow on a spot only partially exhausted the previous year; as also should the first crop of Brussels sprouts, when the land can be spared. Beetroot is not very particular in the choice of a spot, so that the soil is in a kindly friable condition.

I have omitted to number the whole of the principal square, because it is impossible for any one to give the precise breadths of different vegetables required by different families; as, for instance, some require cauliflowers all through the summer, while others will

not have them on the table while peas are in season. So the difficulty in dividing it to suit all parties, will be apparent to the reader.

THE CULTURE OF TRICOLOR-LEAVED PELAR-GONIUMS.

BY MR. F. T. SMITH, OF THE DULWICH NURSERY.



SHORT time since I prepared some notes on tricolor pelargoniums, the results of observations made during the process of raising the several varieties which have been exhibited by us in various parts of England during the past two seasons. I have revised these notes for

the Floral World, and hope they may prove generally useful.

GARDEN CULTIVATION.—It may be supposed that the middle of May has arrived, and a sufficient stock of plants has been secured for the purpose of planting in beds on the lawn, here two or three preliminary matters should be referred to. First, the drainage of the beds. If the surface soil lies on gravel, or any open substratum which permits the passage of water freely, it is well; if, on the contrary, the subsoil is clay, or of any other retentive material, it should be taken out, and nine inches of coarse brick rubbish or broken pottery put in, placing immediately over it some fresh turf from a meadow, the grass under; over this, fill in the upper soil, which should be a light sandy fibrous loam, to which add a good dressing of decayed leaves or well-rotted stable manure; if on clay land, the bed may be raised two or three inches, as a further security against wet and, consequently, cold, which is very prejudicial to the well-doing of the plants. Avoid sunk beds, they are so many small reservoirs for surface water in rainy weather; the soil then becomes saturated, the roots diseased, and that spotting of the foliage and rottenness of the young points occur; this effect is more certain if the atmosphere becomes cold for any length of time after heavy rain.

Many growers use a portion of peat soil in the compost for growing these plants; this has no other influence than lightening the soil—leaf-mould, rotten manure, and cocoa-nut fibre refuse answer the purpose much better. Our experience is against the use of peat, on account of a greater proportion of plants grown partially in it becoming much more diseased than a corresponding number grown in soil such as recommended above. Where the natural soil is deficient of sand, a portion of river or any other clean

free sand may be added.

Choose the situation for beds lying as much to the south as possible, and also protected from strong cutting winds, which have a

tendency to turn the edges of the leaves brown.

Various plans have been adopted in order to show up the colours of the leaves when bedded out in masses—the neutral tints of the Centaureas have been used by planting them as edgings round the beds, and in mixing them among the plants. One of the best effects

yet seen was when Lobelia speciosa was planted, plant for plant, among the tricolors, the blue forming a very effective and pleasing ground colour, on which the gold and crimson leaves of the tricolors shone out brilliantly in the summer sun. Many other experiments will be made during the season for this purpose: at present our experience is but limited.

Having enjoyed the beauty of these plants during the summer season, and September drawing near, the utilitarian thought arises of securing the increase. If the season is damp, the cuttings should be taken off not later than the second week of the month; it the situation is warm and airy, the operation may be deferred for a week or two longer, but there is danger from frost and wet in so doing; in the earlier part of the month the cuttings are more fitted to root, and get established before winter: these should be inserted in thumbpots singly, using very sandy loam only. Place the pots on gentle bottom-heat, using water very sparingly, and in three weeks they will be sufficiently rooted.

By the middle of October, at latest, the old plants should be carefully lifted, the soil shaken off the roots, which should be slightly trimmed; place them in as small pots as will conveniently contain them; put them on gentle bottom-heat for a fortnight, when they may be moved to the greenhouse, on airy shelves, using water

sparingly during the winter months.

GREENHOUSE OR CONSERVATORY CULTURE.—It is here, in a greater degree than in the open garden, the writer anticipates an increased amount of pleasure will be derived. Under glass the plants are unaffected by rain and storms; here the amateur may enjoy an uninterrupted survey of the wondrous changes wrought (instrumentally) by the hand of man. To the uninitiated it may seem enough to possess one or two varieties, but to the trained eye of the connoisseur the distinguishing characteristics of even one hundred varieties are plainly visible.

Some of the varieties produce leaves of a light hue, which intensify in colour as they advance in age; others, again, are dark in their first state, and get lighter. Again, one or two varieties in our possession produce leaves both dark in zone and bright yellow on the edge of the leaf; these change gradually—the zone becomes scarlet, the

edge of the leaf nearly white.

The tricolors delight in light, free air, and during the winter months and all cold weather a dry atmosphere; in hot summer weather a thin shade is requisite from ten a.m. to three p.m. To describe a structure suitable for these conditions, let us propose a span-roofed house, as admitting the greatest degree of light: this should be at the angle of 45°, with a roof ventilator the whole length of the house—the width should be, say twelve feet; side-lights may be dispensed with, but ventilators, extending the whole length on each side, should exist. These may be near the ground, so as to admit the air under or opposite the pipes—thus warming it as it enters the house; the inside needs but a row of slate slabs, three feet six inches to four feet wide, on each side; the pipes for heating should be two rows, of four inches, on each side. It is, by far, better to have too much heating power than too little in this uncertain climate.

In regard to temperature, there is no doubt that most variegated plants are more tender than the same species green, and tricolors require from five to ten degrees more warmth than the ordinary zonale. But to have them in colour in the autumn and winter requires air as well as heat; there must, therefore, be a corresponding amount of heat kept up to modify and warm the admitted outer atmosphere—fifty degrees is the minimum and sixty the maximum at which, with admitted air (without sun-heat), it is desirable to keep them—and if this can be done night and day (except in dangerous frost) the plants will grow more robust; in sunny days, of course, the heat will range higher, but if the ventilation is good, eighty degrees will not hurt the foliage or deteriorate the health of the plants.

The proper periods for shifting on these plants vary with the intention of the grower and the condition of the plants; but the first spring shift should not take place before the middle of February, and if the plants have been kept at a lower temperature than here indicated, the operation may be deferred to the end of the month; these may be again shifted, according to their strength of head and root, into large pots for the season, about the end of April or middle of May. When autumn arrives such as have been cut down may be disrooted and re-potted in smaller pots, as before directed for out-door plants from the beds. All those plants intended for winter decoration should consist of young plants potted in July; these will not

require to be shifted before February.

Watering should at all times be commensurate with their actual want at the time. Never water them so heavily as to last two or three days beyond their need; this is too frequently done by inconsiderate persons, particularly if the plant be rather dry and the day warm, whereas no one knows what a day may bring forth; many plants are ruined by this overdose of water, followed by cold, cloudy weather, or an accidental lowering of the temperature of the house. If these remarks apply in summer, they have double force in winter,

when very careful watering is requisite.

Manure of various kinds has been tried in liquid form, but without any apparent benefit or superiority over the plants grown in soils as before recommended, the conclusion arrived at being against its use, as detrimental to health, evidenced from a number so treated becoming sickly in winter in a much greater degree than those grown in sandy loam and decayed manure or leaves. In potting for winter, use a larger amount of drainage (say one-third), and pot rather lighter than for spring; it is a good plan to secure the main stem with a stick to steady the plant; tie out the laterals to admit light and air among the foliage, and be careful to remove all decaying flowers, leaves, and even the small leaflets; if not removed, they generate mildew or fungus, which attacks the bark, ascends to the tender centre of the shoot, and causes that punctured appearance on the foliage, frequently destroying the plant.

PROPAGATION AND PRESERVATION OF BEDDING-PLANTS.

BY JOHN F. M'ELROY.

N respect of the management of bedding-plants, we are too prone to delay commencing propagation till the autumn months are fast gaining on us. This does not arise from indolence, but often from the many urgent jobs that require doing at that particular season, such

as cropping, fruit gathering, and, withal, striving to maintain the garden in good trim whilst the flowers are in their prime. Then, again, we do not like to sacrifice any bloom while the beds are in However, my experience from failures as well as successes has taught me that as soon as we have finally completed our bedding for the season we should think about selecting a spot and preparing the same for cuttings. For Verbenas I get a one or a two-light box, in accordance with the quantity we may require; this is placed on a spent dung-bed, with the back against a wall or fence, so as to be well shaded from the mid-day sun, leaning as the frame should towards the north. I then spread on the surface, to a depth of three or four inches, some light soil, sifting over the same a small quantity of silver-sand. By the second week in July we obtain from each variety as many short-jointed cuttings as we consider requisite. These, after due preparation, are dibbed in the frame rather thickly, leaving a margin betwixt each sort; then, by the aid of a fine rose fixed to the watering-pot, we sprinkle them so as to cause the sand to firmly settle the soil. After this, we keep the lights closed until we observe signs of rooting, unless it may be to open them for a short time early in the morning in order that the condensed moisture may escape. If July passes, and this work is not done, we hurry to it in the very earliest days of August, knowing that further delay will be dangerous.

A little judgment is required to be exercised in shading, as we must not exclude any more light than will prevent them from drooping, or otherwise they will become weakly in their growth. Look over them at intervals, and clear them of any foul or decayed leaves, and if insects make their appearance fumigate with tobacco at once, as they suck away the sap which is necessary for healthy growth, and by the loss of which cuttings will ultimately dwindle away. When we perceive a general sign of rooting, we occasionally syringe them gently on warm evenings, and afford them during the day a moderate quantity of air. When we consider they are sufficiently rooted, they are fully exposed, and we pinch off their tops; and as soon as they begin to push out shoots from the remaining eyes we commence potting, putting three plants in a 60-size pot, which is very much better than crowding them in a larger pot-that is, supposing you have room for shelving them during the winter, as in the spring they will the better sustain the

shift in potting them singly, if you require it, or otherwise you can let them remain till the period of planting, and they will scarcely receive a check if you divide the ball in three parts with a knife.

Some sorts of Verbenas strike better from the young shoots produced by being grown in heat in the spring, such as Purple King. As this variety is very liable to become a prey during the dry autumn months to thrip, observation will teach you which are the kinds that will not succeed in being propagated readily in the autumn. The plan is then to pot off singly in the spring as many as you may want for obtaining cuttings for the following spring, and keep them in a shady part of the garden. Shift and stop, and

so preserve a thrifty state of growth.

Variegated Alyssum, all kinds of Tropeolums, and other similar bedding-plants, strike freely in a cold frame, if put in at the same time as the Verbenas, and treated accordingly; and withstand damp and other diseases to which they are subject better than the late propagated plants. When the work of propagating Verbenas, etc., is completed, commence with the variegated Geraniums, selecting for the purpose a sheltered border of good friable soil. Nothing is more vexing to a gardener than to have to cut his plants while in bloom. The best way to proceed is to obtain cuttings from the beds every alternate fortnight, from the middle of July till the latter part of August; the first two batches we strike in the border; the others are put-say about twelve or fifteen cuttings-in a 32-size pot, well crocked, as we allow them to remain all the winter in these pots before they are potted singly. Do not crowd the pots together, as the shoots when they commence growing get weak and soft, which causes them to turn black and decay during the winter. Just above the surface of the soil remove all withered leaves from the cuttings, both in the border and in the pots. When the former are rooted pot them singly into 60-size pots; these, by judicious stopping, will make nice bushy plants by the spring.

In reference to Calceolaria cuttings turning black, it is seldom that this happens generally, unless the plants, previous to obtaining them, have been exposed to frost. Nothing is easier to propagate than bedding Calceolarias, and the middle of September is quite soon enough for the purpose, as they root freely either in pots or in a cool frame, if kept free from insects, damp, and frost, though some weeks may elapse before they are properly rooted. There are no months in the year when so much attention is required in the preservation of bedding and other soft-wooded plants as November and December. Fire-heat should be used, if the weather is foggy and wet, at least under all circumstances once a week, and especially after watering; the fire should be lighted in the morning, and allowed to go out early in the evening. Give plenty of air

during the day, unless the weather is frosty.

ANNUALS FOR THE GREENHOUSE IN EARLY SPRING.

MIGNONETTE.



MAKE three sowings for spring flowering—the first in the second week of August, the second about the end, and the third in the second week of September; those for specimen plants I sow in pots of the size called 48, and those for remaining as they are in 32. The soil I use is half peat and half leaf-mould, well incorporated together, and passed

through a very coarse sieve. The parts of the peat that remain in the sieve I lay above the potsherds, to secure proper drainage. I sow the seed moderately thin, and cover it slightly with soil composed of sand and peat passed through a fine sieve. I then water the pots, and put them in a frame, and keep it nearly close shut up till the seed vegetates; and then the lights are pulled off in fine weather, to prevent the plants being drawn up weak; but I put them on in heavy rains. I thin them out as soon as I can take hold of them with ease; I thin them twice, leaving at the last four plants in the 48 size, and six in the 32. If the weather is fine, I let them remain till the middle of October; if otherwise, I remove them to a shelf close to the glass in the greenhouse, where they get plenty of air; and in a short time they are in flower. Those of the second sowing I prefer for specimen plants. When the pots are well filled with roots, so that they are protruding through the bottom of the pots, I shift them into a size larger; those in 48's I shift into 32's, and those in the latter flower much longer and finer by being shifted into 24's. I use the same soil, but not sifted; then tie up the plants to small stakes. At the time they require shifting, the leading shoot will be in flower, which I pinch off those plants. About the beginning of January they will require another shift into No. 24's; at this shift I add a third of light rich loam to the former compost, and take in the strongest lateral shoot for a leader; at this period the laterals will be flowering, which I pinch off: they will now begin to grow rapidly, and proper attention should be paid to watering. By adopting the above treatment I had plants three feet high, and two feet in diameter, which kept on flowering till the middle of May.

NEMOPHILA INSIGNIS.

I sow the seed at the same time as the mignonette, viz., the beginning of August, under hand-glasses, removing the glasses as soon as the plants are above the surface. I thin them out to prevent their being drawn up weak. When the plants are a good size, I put them into 60's, one in a pot, if strong, but sometimes three; and 1 give them a good watering overhead, and place them in any sheltered situation, but fully exposed to the sun. About the middle of October I take the strongest, and repot them into 48's, and tie up the branches to five or more sticks in each pot; I then place them in a cold pit, giving them all the air that is possible. About the beginning of December some will be required to be shifted into 32's, to be in flower in February, and the others I shift in succession into 24's When I shift them into the pots I intend them to flower in, I stick in four willows at regular distances round the pot, and, bending the two opposite, I bring them together at top in the form of a balloon; those in 32-pots about two feet and a half above the pot, and those in 24's three feet. I then put hoops of strong wire round the willows, the first six inches above the pit, the other eighteen inches above it, securing them firm to the willows. I then the fine threads of matting at regular distances between the two hoops, to train the shoot to which, when they reach the top, I allow them to hang down on the other side. The reason why I train them in the manner described is this:-if trained on straight sticks, as soon as they get to the top they break down, not being able to support themselves, and thus leave all the top part without any flowers. Another way is not to tie them up at all, but let them hang down all over the pot. In doing them this way I keep them on shelves, to prevent their damping off. In placing them in the greenhouse, the pots should be placed above the height of the visitor, it being unsightly, not having many flowers near the roots. Also stakes can be driven into the border of the conservatory, and pots placed on the top, the shoots hanging down and covering the stake. The plant has in this manner a fine effect; in a word, it has only to be seen to be admired.

SCHIZANTHUS PINNATA.

I treat this in the same manner as the Nemophila, except the training; it requires only one stick in the centre. With proper care, this may be grown into a pyramid five feet high, freely branching from the base. The same soil as recommended for the Mignonette will suit the Nemophila and the Schizanthus. A. S.

FOURCROYA LONGÆVA.

HE Fourcroya longæva, Karw. and Zucc. (Amaryllidaceæ), has been discovered by Zuccarini, near Oaxaca, in Mexico, near the summit of Mount Tanga, at an altitude above the sea of 10,000 feet, and in other parts of that vast country in similar positions. There, according to that botanist, its trunk or stipe attains a height of from forty to fifty

feet, and a diameter of from twelve to eighteen inches, always simple—that is to say, without ramifications, it carries the cicatrices of the fallen leaves. At the summit is a vast and magnificent sub-rbicular crown of very numerous sword-shaped leaves, from five to six feet in length. From the centre of this crown rises the floral scape, which attains from thirty-six to forty feet in height, ramified from the base, the branches having there a horizontal development nearly equal to the height of the scape—that is to say, twelve to fifteen feet each. The innumerable flowers, fasciculated, from 3 5, are green, with cream-coloured limb, resembling a star. They emit an extremely powerful odour, which, if inspired too near, ceases to be agreeable, and becomes powerfully nauseous.

Such is a faithful portrait of this remarkable vegetable; and the reader may judge for himself what a grand picturesque effect it must have in its native moun-

tains in the eyes of the enchanted traveller.

It has existed for several years already in the collections of the principal amateurs and horticulturists, and has had many erroneous names applied to it, such as Yucca species, Yucca Parmentieri, Y. argyrophylla, Agave species, inermis, etc. Very recently we found it announced in the circular of a nurseryman as constituting a distinct genus, under the name of Roezlia regia, and where the flowers were falsely described as being double the size of Polyanthes tuberosa. and of the same odour; it is scarcely necessary for us to say that there is no necessity whatever for a new genus. We regret that we cannot here give a figure which would at ones set the question at rest as to the flowers, by examining those of F. flavo-viridis.

the question at rest as to the flowers, by examining those of F. flavo-viridis. As it invariably happens with all exotic plants which in their own countries attain to a great elevation and considerable developments, this one in our greenhouses is comparatively dwarf, but has nevertheless always a grand and picture-que effect. Thus, with the individual which flowered with M. L. de Smet, of Ghent, in 1863, the trunk or stipe was not more than twenty or thirty inches in height, and this was surmounted by a superb tuft or crown of very numerous gladiate leaves, less than three feet long, of a bluish, glaucous green, having an irregular and deeply-furrowed surface, ruggedly granular, the edges very fine, and imperceptibly denticulated. Their disposition, according to their stage of development, makes a very pretty appearance; the inferior ones are decumbent, the middle ones horizontal, and the superior rising. From the centre rises a cylindrical scape, very robust, more than nine feet high, clad from the base to a quarter of its length with leaves and large bracts, very distant, acuminated, and carrying a pannicle exactly pyramidal, the longest ramifications (those at the base) being not less than ten to fifteen inches long; these are very numerous, horizontal, and carry innumerable flowers, pendant, germinate, ternate, quarternate, or quinate, rarely solitary.

flowers, pendant, germinate, ternate, quarternate, or quinate, rarely solitary.

It is a plant which will become indispensable to complete a good greenhouse

collection, in company with Agaves, Yucca, Dasylirium, and Beaucarnea.

NEW PLANTS.



RIESEA GIGANTEA, Gigantic Vriesea (L'Illust. Hort., t. 516).— Bromeliacea. A Brazilian plant of fine character, the leaves are radical, the inflorescence a huge raceme of greenish white flowers, the stem and bracts pale rose.

CAMELLIA ANGELO COCCHI (L'Illust. Hort., t. 518).—A large,

rather flat, rather rough flower, white, marbled, and patched with pinky red.

DRABA VIOLACEA, Violet-flowered Whitlow grass (Bot. Mag., t. 56:0).—Cruciferæ. An extremely pretty species from the Andes; it is of shrubby habit, with neat elliptic leaves, and fine showy heads of violet crimson flowers.

IPOMEA GERRARDI, Gerrard's Ipomæa (Bot. Mag., t. 5651).—A fine species from Natal, where it is known as the "wild cotton." The stems proceed from a stout woody root stock, leaves rounded-cordate, flowers large, salver-shaped, white, clothed with brown wool.

RUDGEA MACROPHYLLA, Large-leaved Rudgea (Bot. Mag., t. 5653).—A magnificent stove shrub from South America. The leaves are one to two feet long, obovate-oblong, coriaceous, a fine dark-green colour, the flowers in globose heads, creamy white, the corollas funnel-shaped, thick in texture.

Epidendrum Cooperianum, Mr. Cooper's Epidendrum (Bot. Mag., t. 5654).— This is a good species, of extremely near habit, the flowers are produced in a diffu-

sive raceme, sepals and petals yellowish brown, lip rose red.

GLOXINIA HYPOCYRTIFLORA, Hypocirta-flowered Gloxinia (Bot. Mag., t. 5655).—A pretty and rather curious species from the Quitenian Andes. The leaves are vivid grass-green, with bold white veins; the flowers small, globose, orange red.

GARDEN GUIDE FOR AUGUST.

Kitchen Garden.—The most important work this month is the sowing of seeds for crops to stand the winter, such as turnip, spinach, cabbage, cauliflower, and endive. The best date for sowing must depend on the district. It is not advisable to be too early, as in the event of a severe winter large fat plants suffer more than small lean ones. But if sown too late, there will be no plant at all, for the growing season is fast passing away. Generally speaking, the first week in August is the proper time to sow all these things, but in the South of England it may be done a month later. As a definite date is always useful to cultivators who have not had much experience, we recommend all seeds intended to stand the winter to be sown between the 7th and 20th.

Flower Garden.—Very few people know anything of the beauty of annuals, because very few people practise autumn sowing. Now is the time to sow hardy annuals of all kinds to stand the winter, for an early and vigorous bloom next season. All the Californian annuals are suitable; in fact, there is nothing among hardy annuals worth sowing but will stand the winter, if sown the first week in

August, on hard ground.

Fruit Garden.—Nail in at once the new growth of wall-trees, to promote its hardening. Grafting, or rather inserting buds with a heel of wood attached, is a good deal practised on the continent at this time of year. Fruit spurs, skilfully grafted now, will fruit next season as well as if they had been left on their parent trees.

Greenhouse and Stove.—Make ready for housing tender subjects, and keep a sharp look-out for a supply of winter flowers. A great many seeds may be sown now, where there is convenience for keeping the little plants safely through the

winter.

*** Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar adapted for reference. For these reasons the "Garden Guide" will be on a contracted scale this year.

NEWS OF THE MONTH.

EXHIBITIONS OF Roses have been more numerous than heretofore. The season began with the CRYSTAL PALACE Show, on the 29th of June. This was followed by the ROYAL HORTICULTURAL a week after, and then came the BIRMINGHAM, HEREFORD, and RUGBY meetings in quick succession. Since all these-not in advance of them, as might have been expected—the rose-show at BRIE-COMTE-ROBERT has taken place, and this being in the land of roses, and supported by the principal French raisers, might have been expected to eclipse all ours, but it was not so, for it was absolutely inferior to the Birmingham show, as respects the quality of the roses, though in the mode of display it was characterized by a taste and finish to which we have not yet attained. The Crystal Palace exhibition was "good, considering." The fact is, for such an untoward season, the date was too early. But the growers did their best, and there were some thousands of fine blooms exhibited. The best of the rose-shows was undoubtedly that at Birmingham, where the spacious Town Hall was generously granted for the purpose by the Corporation. At Brie-Comte-Robert one exhibitor put up 600 varieties. All the roses were displayed on the ground, being formed into rich groups on sloping beds of moss. The effect of tasteful grouping was novel and delightful, but there were no such fine flowers as we meet with at our own shows, and the varieties were the same as we have already in cultivation. After the rose-shows, the most important of the month was that held at Bury St. Edmunds, by the conjoined efforts of the Royal Agricultural and Royal Horticultural Societies. It is the first time these two bodies have been united, and we are most happy to record the fact that the union was of the most cordial nature, and satisfactory in all its results.

The arrival of two Oriental princes, and of the Belgian volunteers, as visitors to London, aroused the energies of horticulturists to contribute to the splendour of their welcome. The weather declined to co-operate, for the tears of St. Swithin fell copiously, and during the greater part of the time of the stay of our distinguished visitors, the skies were overcast, and wind and rain spoilt many an out-door celebration. Floral embellishments were adopted in the several splendid receptions given to our guests, with more than our accustomed liberality, the principal work of decorating Buckingham Palace, the Guildhall, and the Agricultural Hall, being

entrusted to Messrs. Veitch and Mr. B. S. Williams.

Since the heavy July rains, the appearance of all garden crops has greatly improved. Turnips, potatoes, and winter greens are growing freely. On farm lands, green crops and roots promise to be very abundant, and a good crop of hay has been well saved. Cereals want a few weeks' sunshine, and we do not at all fear that they will have it. The harvest will be rather later than usual, but the yield promises to be fully an average.

GATHERINGS FROM EXHIBITIONS. R. CRANSTON'S FIRST PRIZE (72 Roses at Crystal Palace).—Madame

Brianson, a splendid large flower, rather flat; Madame Moreau, Paul Ricaut, William Jesse, Maréchal Souchet, Margaret St. Amand, Madame Victor Verdier, Souvenir d'Elise, Maurice Bernardin, Jean Goujon, François Lacharme, Madame Boll, showing a big eye; Horace Vernet, fine; Comte de Nanteuil, Christian Puttner, beautifully folded, crimson purple, a charming flower; Thorin, a fine rose; Louise Van Houtte, Madame Eugène Verdier, Madame Pauline Villot, Alpaide de Rotalier, Duke of Wellington (to call this a "Duc" is simply to insult one of our own heroes), La Esmeralda, Napoleon III., Souvenir de la Malmaison, Beauty of Westerlam, Centifolia Rosea, Dr. Andry, Duchess of Orleans, Gloire de Montplaisir, Madame Clémence Joigneaux, Lord Clyde, Gloire de Dijon, Claude Million, Madame Vidot, Charles Verdier, Duchesse de Caylus, Pauline Lansezeur, Madame Domage, Madame Crapelet, Madame Bravy, Prince Camille de Rohan, Caroline de Sansal, Jules Margottin, Baron Gonella, King's Acre, Sénateur Vaisse, Céline Forestier, Madame Charles Wood, an euormous flower without a shadow of coarseness; Joseph Fiala, Madame Knorr, Baron de

Noirmont, Anna de Diesbach, Le Rhône, Louise de Savoie, General Jacqueminot, Mrs. Rivers, Pierre Notting, Madame William, Prince Henri de Pays Bas, Charles Lawson, Charles Lefebvre, Niphetos, Lord Macaulay, Charles Margottin, Admiral la Peyrouse, Comtesse Cécile Chabrillant, Devoniensis, Madame Hector Jacquin, Souvenir d'un Ami, John Hopper, fine; President, Souvenir de Charles Montault.

Mr. Hedge's First Prize (48 at Crystal Palace).—Conpe d'Hébé, Sénateur Vaisse, Triomphe de Rennes, Madame Crapelet, Queen Victoria, Lord Clyde, L'Enfant Trou é, Olivier Delhomme, Comtesse Chabrillant, Madame Victor Verdier, Charles Rouillard, Marie Baumann, Louise Margottin, Charles Lefebvre, Rubens, George Prince, Maréchal Niel, the best example of this rose in the show, colour clear, rich, and rather deep yellow; La Ville de St. Denis, Mrs. Rivers, Pierre Notting, Souvenir d'un Ami, Madame Charles Wood, Armida, Prince Léon, Devoniensis, Madame Boll, Caroline de Sansal, Alphonse Damaizin, Moiret, Souvenir de Count Cavour, Gloire de Dijon, Alfred Colomb, Souvenir d'Elize Vardon, La Fontaine, Cloth of Gold, John Hopper, Madame Knorr, Charles Margottin, bad; Auguste Mie, Madame de Cambacérès, Louise Darzens, Baron Gonella, Joan of Arc, Charles Lawson, Enfant de Lyon, Gloire de Santenay, Adam, Lord Macaulay.

REV. E. N. POCHIN'S FIRST PRIZE (12 at Crystal Palace).—Charles Lefebvre, Anna de Diesbach, Fisher Holmes, John Hopper, Madame Boll, Maréchal Niel, Xavier Olibo, Margaret St. Amand, Madame Victor Verdier, Prince Camille de

Rohan, Souvenir d'un Ami, Madame Crapelet.

ZONALE PELARGONIUMS AT ROYAL BOTANIC, July 8 .- Mr. Ward, gardener to F. J. Wilkins, Esq., Leyton, and Mr. Catlin, gardener to Mrs. Lermitte, Finchley, were equal first in the class for six with very fine plants. Mr. Ward had Madame Boucharlet, a fine salmon; Sobieski, intense scarlet; Louis Roeseler, in the way of Herald of Spring, but apparently lighter in colour, one of the finest plants in the tent; Rose Rendatler, superb in every respect, and the finest zonale of the day; Monsieur Rendatler, a splendid salmon-coloured variety; and the Clipper, a fine scarlet. Mr. Catlin had Smith's Excellent, Tintoret, Madame Vaucher, Monsieur Rendatler, Scarlet Globe, and Monsieur Martin. As our country readers sometimes ask about the London style of growing these things, we took the trouble to measure Mr. Catlin's plant of Excellent. It measured four feet over, in a regular low convex outline, and had 66 trusses full open, not a withered flower was visible, and every leaf in its place. Mr. Windsor, gardener to J. R. Ravenshill, Esq., Walthamstow, put up a grand six, the names of which we missed. Mr. Winter, gardener at the Elms, Golder's Green, Hendon, had a fine group in too flat a style of training; the varieties were Scarlet Globe, Gem of Roses, too shy for exhibition; Senator, Cerise Unique, a blaze of colour; Madame Vaucher, Charles de Mas, a

green-leaved scarlet of good form and fine deep colour.

CARNATIONS, PINKS, AND PICOTEES AT ROYAL BOTANIC.—The names of the best stands of these will no doubt be welcomed by many of our readers as affording the best suggestions for the formation and improvement of collections. Mr. Turner, of Slough, put up the best collection of CARNATIONS, comprising True Blue, a new variety, of medium size, marked with heavy flakes of bright purplish rose, beautiful and novel. In the same stand Lord Clifton, Dr. Foster, Lorenzo, Fanny Gardener, Prince Albert, Merrimac, Duchess of Kent, Annihilator, Ruth Hannah, Flora's Garland, Young Milton, Earl Stamford, Justice Shallow, Lady of the Lake, John Keil, Brutus, John Reet, Cradley Pet. Mr. H. Hooper, of Widcome Hill, Bath, had Venus, Beautiful, Stone's Venus, Mayor of Nottingham, Parker's Garland, Prince of Wales, Jefferson Davis, Gem, Duke of Cambridge, Grand Master, Oriana, Juno, Beauty of Woodhouse, Glory, Excellent, Diana, Neptune, Fanny Gardener, Standard, Victor, Florence Nightingale.—Mr. Turner, of Slough, and Mr. Hooper, of Bath, exhibited Picotees. Mr. Turner showed Mrs. May, Miss Wood, Duke of Devonshire, Miss Sewell, Mrs. Dixon, Prince Arthur, Miss Williams, Eliza, Forester, Robin Hood, Fillis, Amazon. Mr. Turner took first place with twenty-four Pinks: the varieties were Rev. G. Jeans, Annette, Attraction, John Ball, Celestia', Tius, Marian, Device, Exhibitor, Charles Turner, Invincible, Bertram, President, Goliath, Alma, Delicata, Aurora, Purity, Blondin. Mr. Bragg, second, with Blondin, Purple Prince, Nonpariel, Mr. Bragg, Dr. Maclean, Hector, Device, John Ball, Ernest, Beauty, Attraction, Rifleman, Victory, Celestial, and ten seedlings. Besides these, Mr. Bragg presented Nonpariel, broad laced purplish rose, scarcely rich enough for

its class. From Mr. Shenton, Biggleswade, Primrose Queen, large primrose white, showing much green at the base; bad. Leviathan, large, light rose lacing, blackish crimson at base of petals; this appears to be a good pink, but when we saw it it was falling to pieces, probably in consequence of the heat of the weather and the draughty place it was in. Sultan, small, very heavy lacing of maroon crimson; fine. Ethel. lightly edged rose, heavy maroon crimson base. Mr. Pizzey, gardener to Mrs. E. Fulmer, of Slough, took the small silver medal for a beautiful dozen; they were Rev. G. Jeans, Blondin, John Ball, Attraction, Marion, Scarlet

Gem. Device, President, Ernest, Bertram, Delicata, Cristabel.

Pannies at Royal Botanic.—Messes Downie, Laird, and Laing, of Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, took the first place in the class for thirty-six; the varieties were Kinleith, Attraction, Prince of Prussia, La Défi, Mary Lamb, J. B. Downie, Rev. H. Dombrain, Invincible, Blink Bonny. Isa Craig, Ladyburn Beauty, Chancellor, Lavinia, Arab, Cherub, Princess of Wales, Lord Clyde, Jessie Laird, Francis Low, Countess of Rosslyn, Perfection, Miss Williamson, Novgorod, Czar, Peer-ss, Eclat, Cupid, C. W. R. Ramsay, Dux, Lady Lucy Dundas, George Wilson, Miss Hopkins, Gem, Village Maid, General Lee. Mr. Hooper, of Bath, second, with Attraction, Baroness, George Catley, a fine small dark self; Sun-et, Lady E. Studley, Sir Launcelot, Ajax, Mr. T. Moore, Harry, New Colour, a self, curious rosy purple, with shade of puce, very beautiful; Randolph, Lord of the Manor, Mrs. Gladstone, Flower of Spring, Alexander the Great, Miss Williamson, Novelty, Snowball, Queen of Beauties, Princess Helena, a beautiful white ground flower; John Gray, Princess of Wales, Purple Perfection, Francis Low, Narcissus, Cream of the Creams, Countess of Rosslyn. Mr. Bragg put up a good thirty-six. and Mr. Adair, of Aliceville, Edinburgh, presented a pretty twenty-four, comprising Attraction, Miss Hill, Ladyburn Beauty, Invincible, Chancellor, Mrs. J. White, J. B. Downie, Arab, Princess of Wales, Cherub, Lavinia, Francis Low, Cupid, Miss Ramsay, George Wilson, Lady L. Dundas, Perfection, Eclat, Alice Downie, General Lee, Countess of Rosslyn, Miss Muir, Czar, Jessie Laird. From Mr. Hooper, of Bath, a new bedding pansy, called Sunset, medium size, bright gold yellow, with small dark central spot. Fancy Pansies were contributed by Messrs. Downie, Laird, and Laing, the varieties being Maccaroni, Oriana, Black Prince, Mrs. R. Dean, Mrs. H. Northcote, Wm. Moffat, Ninian Neven, Amy, Eola, Prince Napoleon, Magnificent, Indigo, H. W. Adair, Mrs. T. Scott, Striped Queen, Punc

Messrs. Paul and Son's First Prize, 18 Tea, Noisette, and China Roses at Birmingham.—Souvenir d'un Ami, Jaune d'Or, Madame Damaizin, Alba Rosea, Gloire de Dijon, Madame Maurin, Comte de Paris, Triomphe de Rennes, Caroline, Souvenir d'Elise. Devoniensis, Vicomtesse de Cazès, Madame Willermoz, Amabilis, Madame Falcot, Homère, Niphetos, Rubens. It will be observed that there were no Chinas of the Bengal class in this lot at all, and only one true Noisette, and that

was Triomphe de Rennes.

Messas. Paul and Son's 12 Summer Roses at Birmingham.—La Séduisante (Alba), a flat-faced but pretty rose, the colours a mixture of pink and flesh, with tinges of salmon; Dr. Dieltheim (Gallica), rose shaded with purple; Blanchefleur (Hybrid Provence); D'Aguesseau (Gallica), rich crimson, large and showy; Unique (Provence), usually white, but in this case prettily barred, striped, and blotched with pink; Transon Goubault (Gallica), deep but lively crimson, good form; Madame Scëtmans (Damask), creamy white shaded buff; Columella (Gallica); Paul Ricaut (Hybrid Bourbon), rosy crimson, good form, one of the few of the summer roses that still keeps a first-rate place in competitions; Œillet Parfait (Gallica), white, with stripes of crimson, good; Louis Philippe (Gallica), dark, a fine rose; Botgavis (Hybrid Provence).

TO CORRESPONDENTS.

Waltonian Case.—Amateur.—Yes, we still recommend it, if it can be got; but we know nothing of the maker's whereabouts with certainty; the last we heard

of him he was at Bournemouth.

VINE LEAVES FROM NORFOLK.—E. W. A. G.—The finely-divided leaves sent from an old vine bearing white fruit is a variety known in the old catalogues as Ciotat, and under this name described by Speechly (No. 45). It is the Raisin G'Autriche of Duhamel (No. 5 t. 2) and the Parsley-leaved Vine of Horticultural Society's Catalogue, No. 39. The berries are round, white, medium-sized, thin skin; flesh juicy, sweet, but not highly flavoured. It is worth a place under glass to train up a wall or pillar, as it then produces better fruit, and the finely-divided leaves are highly ornamental. It is almost out of cultivation, and amongst any hundred of our best grape growers we should scarcely find one who knows anything of it.

ELYMUS GLAUCESCENS.—C. W. B.—This beautiful grass shows to best advantage on a ledge of a rockery four or five feet above the ground line. It will grow in any soil, but sand is its native element. It makes a fine pot plant. We have some specimens in ten-inch pots, which with potted deodars, etc., etc., make a fine figure

on the lawn.

GARDEN WALKS .- I have the management of some garden walks which are made of small pebble gravel about the size of cob-nuts, larger and smaller. They have been made about five years, and I cannot get them to set, having tried putting sand on and rolling, without success. The walks are round a grass plot, and in wet weather the pebbles tread on to the grass, which in addition to making the garden look very untidy, and being loose to walk on, it makes sad havoc with the mowing machine, straining it all to pieces so badly, that one that has only been in use a little more than a year has now gone to Leeds for repairs. Finding myself in this predicament, I ask for your valuable advice in the matter, as, since I have subscribed to the FLORAL WORLD, I have read it with profit, and venture for once to ask a favour through its pages. F. E. H. [We do not happen to know how our correspondent, who dates from Chesterfield, is situated in regard to obtaining materials for the improvement of this walk, but we can give him directions for a certain cure if he can obtain Portland or Roman cement at a reasonable price. The first of these two materials is to be preferred because of the brightness of appearance the walk will have when the work is done. When the weather is quite dry the walk should be broken up to the depth of one foot, and the whole of the stuff should be screened, as builders screen line core, unless it consists of the same kind of pebbles to the depth of a foot, in which case screening is not needful. When broken up, and as dry as it can be got in hot weather, lay down a bushel of Portland cement to every square yard, quickly mix gravel and cement thoroughly, and rake the walk to a neat and very gentle convex surface. Water it and roll it, and it will very soon become a pavement. The work should be done a piece at a time, so as to finish it off quickly without exposing the cement to the air longer than can be avoided. If expense is a serious matter, break the walk only six inches deep, and use half a bushel of cement to the square yard.]

Variegated Leaves.—S. B.—As a rule, poor soil should be used in the cultivation of plants with variegated leaves. We have before us an interesting example in the variegated willow-herb, the potted and half-starved plants of which are so superior in variegation to plants of the same species growing in good soil, that no non-professional critic would judge them to be the same. The common variegated Aucuba will produce richly variegated leaves in a rich soil in the full sun, but with poor soil and shade it makes leaves which are almost wholly green. With plants

that have white or creamy variegation, poor soil is almost always requisite.

VIOLA CORNUTA.—Vindex.—Some of the wise people have confounded V. cornuta with V. calcarata. If you have cornuta true you may well be content, for it is charming.

THE FLORAL WORLD

AND

GARDEN GUIDE.

SEPTEMBER, 1867.

FAILURES IN SMALL GARDENS.

O direct attention to failures, and the causes of failures, in the management of small gardens, may be of some service to many of our readers. We are not at all in the spirit of fault-finding, and, when needful, will defend the English gardens, large and small, from any possible

detractors. But in travelling about in all parts of the country, seeing gardens everywhere, large and small, conversing with all classes of cultivators, many things come under our notice that are less perfect than they might be, though their possessors are not always aware of their imperfections. Perhaps in some things we are disposed to be hypercritical. When the mind is intently occupied with one class of observations—when it runs in a groove, so to speak, it is apt to attach undue importance to trifles, and to descend to hair-splitting, instead of ascending to nobler work. Should such appear to be the case with the writer of this, free forgiveness is asked of our readers generally, more especially if any remarks which follow seem to be directed against any particular person or place; for it may as well be said at once, that the ideas which now occur to us have no personal or local connection whatever, so there can be no proper reason for any one to be hurt.

Failure as to general effect is a common occurrence. Usually this is the consequence of attempting more than is fairly possible in the space at command. It is scarcely possible to construct a garden which shall give an air of comfort, dignity, and cheerfulness to the dwelling, unless there is in the foreground some breadth of open space with grass turf, with trees beyond and about it, in such plenty as shall enrich the scene with their fine forms and shadows, without contracting or confusing it. The universal and commendable love of flowers tends, in a great measure, to restrict the adoption, in small gardens, of features of abiding interest; where there might be a beautiful free-breathing carpet of grass, distinctly dotted with a few elegant coniferous trees, and a few clumps beyond, to give a true gardenesque tone to the scene, we have, perhaps, an inordinate complexity of flower-beds, so numerous and so close together,

VOL. II .- NO. IX.

that their forms confuse the eye, and their colours mingle in a manner that makes an end of harmony and contrast together. The bedding system, or, more properly, the promenade system, has ruined thousands of gardens, while greatly increasing the cost and anxiety of keeping them for a bizarre display of colour. Yet the possessors of each spoilt garden experience a strange kind of joy—a sense of freedom and the possibility of rest, when ushered into a green garden, designed with taste, and kept with care. It is astonishing how vast appears a limited space set out in turf and trees, if judiciously accomplished; and how much pleasure accompanies the sense of being set at liberty, with room for several to walk and talk together, without having to defile singly through narrow ways, or raise the question inwardly who shall take the lead along the narrow

path.

Turf and trees are the cheapest, most lasting, and most permanently and manageably enjoyable of all the essential elements of an elegant garden, and should have the first thought, whether in making or improving one. That we do not proscribe flowers, none of our readers need be informed; all we contend for is, that, as a rule, they should be subservient to the general scheme, just as coloured decorations within the house are. Window curtains we must have, but we do not cover our walls, pictures, and looking-glasses with them; and flowers we must have, but in their proper proportion to all the rest of the essentials of a garden. In the foreground of a lawn, a few bold flower-beds are usually appropriate and desirable, and, if well furnished, enhance the brightness of the turf, warm up the lovely shadows of the trees, and actually increase the apparent space set apart for pleasure. But when beds are dotted everywhere, when a scheme of a geometric kind is obtruded of far too great an extent for the place, the boundaries contract upon it, the sense of freedom is gone, quiet appears to be banished from the scene, for colours are exciting-sometimes distracting, and quite antagonistic to the enjoyment of quiet and rest.

It has always been a conviction of ours that from every dwellinghouse situate within its own grounds, one set of windows should look upon greenness, and that this view should extend over as great a space as possible, consistent with the dimensions of the property. In the case of houses built in blocks, on the skirts of roads, it is impossible to do this; but where the house is in the midst of the enclosure, it can usually be done. Even in the case of a terrace. where flowers are always appropriate, a few clumps, judiciously placed, always produce a better effect than a complication. It is in the public garden, where people pay to be astonished, that exuberance of colour is most appropriate; but few amongst the thousands that find delight in highly-decorated promenade-gardens, would care to look upon such scenes constantly; to have, as it were, a grand bedding display for breakfast, dinner, and supper; for times of merriment and times of sadness alike; for times of activity and times of rest. No: greenness should form the foundation of the scheme, and the flowers should be sufficient only to light it up, and mark out points of distances, and give warmth and relief to quieter colours.

Should the "plunging system" ever come to be generally adopted, we shall see thus much of the space now appropriated to flowers contracted, and the display will be more brilliant, more constant, and more various than now. There will be fewer beds, but they will never be bare; and there will be change on change the whole year round, in place of the intermittent colouring which the rage for bed-

ding has so much increased.

Another failure common to small gardens, is the want of features of special interest. In great gardens we find bits of old castles or monasteries, noble rockeries, fountains, patriarchal trees, heronries, and other objects that afford entertainment for the mind; but small gardens do not often present us with things that we can contemplate again and again without weariness. A rockery is especially valuable, for this reason—that it never satiates as an excess of flowers do. Glass, much or little, according to means and space, repays its cost again and again, if, in any degree, put to a good purpose. If there is but one good Hamburgh vine in a glass verandah or little lean-to, it is a source of never-flagging pleasure. We see its buds swell in spring; we watch for the blossoms; in due time we see the little berries, and all the summer long the shadow of the rich leafage is delightful; and, at last, the jet-black fruit adorns the table, and we eat the wages of our care and watching. It matters not what purpose glass is appropriated to, whether to mere beddingplants, or for orchard-house fruits, or for a mixed collection of flower plants; glass, more or less, is always wanted in a garden, to afford a feature of special interest. So, again, in the disposition of trees, flower-beds, and borders, interesting features may be secured. We could now point to a small garden where the approach is rich with evergreens and flowers. Beyond the house, on the other side, a great raised circle, planted with rhododendrons, and these edged with cotoneasters, deutzias, and a ring of ivy to finish off; beyond that, grass turf and trees; and the only flowers to be seen are in rustic baskets; further on, a rockery, making a complete break, and interrupting the view further down; and beyond the rockery, two compartments of roses, and beyond these, plant-houses; and in this garden, which is within the hearing of Bow bells, London, are not only many distinct features, but individual objects of interest sufficient to occupy any one mind for a lifetime.

We are not proposing plans and schemes, and, therefore, neither advocate orchard-houses, rockeries, nor rhododendron-beds, nor anything at all in particular; but we merely direct attention to the necessity of attractive and interesting objects in a garden, that its possessors, and their friends, may find in it an unfailing source of entertainment, with, perhaps, a very large amount of valuable

instruction.

Yet one more point. A common failing in small gardens (and, indeed, in large ones too) is, that many things, easy to do, are badly done. Take for example roses. How often do we see starving standards disfiguring what would be, without them, a nice lawn. They are, perhaps, planted in the turf, and cannot thrive because the soil around their roots is as hard as a pavement, and by reason of

the thick sward, impervious alike to air and water. Or they may be in paltry pincushion beds, the space of open soil they require being occupied with vigorous habited bedding-plants. We do occasionally see standard roses looking so well in pincushion beds on lawns, that we dare not condemn them in toto; but often enough they disfigure rather than adorn the place; and stands generally, about approaches and near the windows, are out of taste, because of their inevitably ungraceful appearance at all times, except when in flower. Where the amateur is stubborn about standards in pincushion beds, yet anxious to try his hand at improving them, the following plan might answer:-For every standard, make a circle, three feet in diameter, and have trees of four to five feet high if possible. Dig these circles two spades deep, with an abundance of manure. will be the first start towards a vigorous growth. Plant them as shallow as possible, sufficient only to cover their roots, and clasp the collar—that is, so much of the stem, just above the roots, as was in the soil before, or less than before, if possible. After planting, which we suppose to be done in October or November, spread over the beds a few inches of half-rotten manure, to protect the roots from frost; secure the roses with iron rods for stakes, and then throw down six inches depth of cocoa-nut fibre, and make a pretty bed by plunging in the fibre potted evergreens. A wooden or wire edging, to enclose this, would give a neat finish, and there would be inaugurated the first step in combining standard roses with the plunging system. In the spring, the evergreens can be removed. and potted bulbs, in flower, take their place; next change yellow alyssum and perennial candytuft; next change anything you please, for you will have all the summer flowers to choose from. in front of a suite of windows, looking on a lawn, half a dozen such beds, at six or eight (or more) yards apart; would they not, in very many cases, far surpass, in beauty and interest, the existing schemes of floral embellishment? In the course of a year the roots of the roses would push up amongst the fibre, and it would be well to lift them, prune the roots moderately, and re-plant. This may appear to make much labour for a little display; but the fact is, standard roses ought to be lifted every year, wherever they are. If this were done, there would be no suckers, because the buds and pushing suckers would be pruned from off the roots; there would be no deaths in winter; there would be finer flowers.

Many other things besides roses are badly done in small gardens; but we must not aim at making a catalogue of grievances. Perhaps these few remarks may explain the whole of our meaning to some of our readers. At all events, our hope is that they may be useful to

many.

S. H.

THE VILLA KITCHEN-GARDEN.-No. III.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



OUBLE CROPPING.—With judgment and foresight brought to bear upon the routine work, much may be done towards making a garden pleasant and profitable. But while advocating a thorough system of double cropping where space is limited, there are two things in

connection with it which I must not forget, or the reader may fall

into an error.

In the first place it will be remembered that I have already stated that a small garden well and judiciously cropped and liberally manured, will produce results equal to one a size larger indifferently cultivated. Now I fear that unless I explain this, some inexperienced readers may seize upon it as an argument in favour of a small garden over a large one, if only, as they think, to reduce the labour power. But this would be a mistake, as a moment's consideration Granting that it is possible by good culture to get the same amount of produce from half an acre as a neighbour does off an acre cultivated in a slovenly manner, the reader must remember, the half acre would be cropped over twice in a year, while the larger one would only be cropped once; consequently the ground would not only be twice dug over to the other's once, but all the other attentions necessary for the welfare of the crops have to be repeated in the same way. So that as to the point of labour nothing is gained by preferring a small garden to a large one.

The other consideration is one that all should understand. It is that according to the amount of produce expected there should be a corresponding liberality in providing manure and other substances necessary for the maintaining of the land in a highly fertile condition, without which the system of double cropping, when carried out systematically will never pay; for if the staple is not constantly enriched by repeated applications of manure, fresh soil, etc., it will, by constant cropping, become exhausted of the elements that are

necessary for the production of a healthy, active growth.

The summer crops which are first off the ground are peas, early cauliflowers, and potatoes. I have already described the mode of planting potatoes and peas together, and alluded to the fact that they come off at one time; or rather, all the first sowings of peas on the main square can be taken away in sufficient time to secure a good breadth of ground for winter subjects, such as broccolis, late Brussels sprouts, and all kinds of winter stuff; not forgetting to plant large numbers of the Rosette colewort cabbage, between the late crops of peas. The potatoes of course will be taken up, and then between each two rows of peas two rows of celery may be planted. The first crop of cauliflower between the asparagus beds being over, their place may be filled up with the coleworts.

In the borders (see Diagram in page 201,) the earliest peas may

be followed with turnips, and the lettuce ground with successional crops of French beans. Besides these, there will be several vacant spots occurring from time to time, which should be filled up with autumn cauliflower and the very useful Walcheren broccoli, and with various kinds of saladings and turnips. A late crop of French beans on a south border should also be thought of. These vacant spots on the borders are especially useful on which to prick out celery, and for the occasional sowings of small seeds, such as the Walcheren broccoli, autumn cabbage, and cauliflower, as well as for the different sowings of radishes.

In the main square the second supply of cauliflower will give a piece of ground for late rows of celery, as will also the first crop of broad beans and turnips, make way for further breadths of winter stuff, including the sprouting broccoli, Scotch kale, and the cottager's kale, and some of the latest spring broccolis; and as the potatoes come away, the ground must be immediately occupied, either with a bed of winter spinach, or more of the Walcheren broccoli sown in the first week in May especially for the purpose. Grub up the spring cabbages as soon as they are all cut, dig into the ground a good dressing of fresh lime, and let it lay for a fortnight, if you cannot vary the crop. Plant at one foot apart each way the colewort cabbage; these will produce double the amount of greens from the same space than will the old stems of the previous plants.

SPACE BETWEEN CROPS.—A mistake often committed by many is the fact that they do not give room enough for the individual plants of any crop to develop themselves, and to show their true character. This is done under the mistaken notion that thereby they increase the bulk, but it is an erroneous practice. The amateur cultivators at least must not share in our censure of this practice, because they have not had the experience to aid them in a right understanding of the subject; nor is the single-handed gardener to be severely blamed, although only a moderate amount of observation ought to have convinced him of his error; but those who profess to advise the reading public in such matters are the parties most deserving of censure: for when we see the advice that peas should be sown at three feet apart, as I have done in horticultural publications, I feel that such men and their writings would have been better if they had never been known—for when advice is so given and accepted upon the strength of the respectability of the paper it appears in, we know the result will be a disappointment to the one and a discredit to the other. To rectify this erroneous practice, I shall here give the proper distances between the principal crops of the garden, that ought to be carried out, because if any crop has not proper room for the development of all its parts, how can it show its true character, or attain that degree of productiveness which ought to be the main object of the cultivator to secure? About half of the peas and potatoes grown in private gardens in this country are completely starved for the want of air to circulate between them; and in the case of peas sown at four and five feet apart (the tall ones I mean) half of the ground and labour is lost.

DISTANCES OF ROTATION CROPS.—Peas ten feet apart between the rows; scarlet runners ten feet; dwarf beans six feet between the rows, nine inches between the plants; broad beans the same; cauliflowers and all the winter broccolis two feet six inches each way; and this distance should be given to Brussels sprouts, savoys, and all the kales and spring cabbages. The Walcheren broccoli and the Stadtholder cauliflower will succeed with two feet each way. Onions, carrots, and parsnips, should be sown in rows, fifteen inches apart; beetroot three feet wide, fifteen inches between the plants. All the early potatoes, with small haulm, should be two feet between the rows and one foot between the plants. For the late crops, amongst which are many strong growers, two feet six inches between the rows is the least distance allowable, three feet would be better, and some sorts require four feet. Turnips should be in rows two feet apart and fifteen inches between the plants. Summer lettuce sown in drills three feet apart, two feet between the plants. Winter lettuce may be reduced to half this distance, as they are generally consumed when very young. Celery trenches should be five feet from centre to centre of row, the plants twelve inches apart. have only named the principal crops, but sufficient is said to show how important it is to observe a strict adherence to the rules here given. I shall now proceed to give the distances of the principal permanent crops.

DISTANCES OF PERMANENT CROPS.—Asparagus beds should be five feet wide for four rows in a bed at twelve inches apart, and a two feet alley between each two beds. Rhubarb should be four feet each way, at least; and sea-kale forced on the ground in clumps of three crowns in each, at three feet each way; strawberries at two feet between the plants, and two feet six inches in the rows. Raspberries should be grown in lines six feet apart, eighteen inches from plant to plant, with two canes from a plant. Gooseberries and

currants six feet every way.

DISTANCES OF HERBS.—Parsley to be sown in rows eighteen inches apart. The plants to be thinned out to six inches apart. Sage, tarragon, hyssop, fennel, and other tall-growing herbs, at a distance of two feet apart from plant to plant; while thyme, winter savoy, and sweet marjoram will require twelve inches between the

plants.

DISTANCES OF FRUIT-TREES.—The distance of wall-trees may range from ten to sixteen feet apart. I prefer the latter distance best for all the walls. But in the case of the south wall I would place between each two trees a rider or standard to fill up the top of the wall, until the permanent trees required the room. The standards should then be removed. This plan can only be adopted with peaches, nectarines, and apricots. It is not applicable to either plums, pears, or cherries, unless the wall is unusually high. Pyramid trees of all kinds ten feet, but if numbers are required, and the trees kept dwarf, this distance may be reduced to eight feet.

SEPTEMBER WORK IN THE FLOWER-GARDEN.



O make the most of what little earth-heat and sun-heat we shall have now that the summer is declining, the amateur should propagate whatever he is likely to need stock of next year of roses, geraniums, fuchsias, and other subjects that require a long period of growth

before they flower. Those who have manetti rose stocks should lose no time in getting them budded as close to the ground as possible, by first removing the soil from the side of the row, so as to give more room for the operation, which is to be performed in precisely the same way as described in our recent paper on budding the brier. As during winter, pits, frames, and houses are generally overcrowded, propagate nothing of questionable merit. Look over the geraniums and fuchsias, and determine which best suit your purpose and your taste, and secure a few of those first. In making cuttings, take short lengths of growing wood; three or four joints will suffice in any case, and make better plants than large cuttings; remove only so many leaves from the base of the cutting as will allow of it being fixed firmly where it is to make its first roots. Fuchsias do best when the cuttings are very small, and from the points of growing shoots, each cutting taken at a joint, the two lowest leaves removed, the cuttings dibbled into sand, then sprinkled with water and covered with a bell-glass, and put in a frame or greenhouse, and kept shady till they root. A quick method is to smear the outside of the bellglass with a mixture of clay and water, which will give shade enough, and the pans can then be placed in the sun, or where the sun will shine on them for an hour or two if needful. All they really need is to be looked at every day; the cultivator's eye has a power in it, and without that charm they can come to no good. All the scarlet geraniums make stout plants if short cuttings are put in the open border in the full sun during July and August; but at this late period of the season where but a few dozen are wanted, it is as well to prepare thumb pots by filling the pots one-third with small crocks, and the remainder any clean loam and sand, about equal quantities of each, well mixed together. Fill the pots, water them so as to soak the soil thoroughly, and then proceed to prepare the cuttings. If the plants are in beds, cuttings may be taken of sideshoots, so as not to spoil their appearance; and it matters not whether they are of hard ripe wood or young shoots that have not yet flowered; either will root quickly, and if well managed be quite strong before the winter. Remove only one or two of the lowest leaves and their footstalks, so as to have at least an inch of clear stem at the bottom. Fix these firmly, one in each pot; sprinkle them so as to wet the leaves, and place them on a back shelf in a sunny greenhouse, or, in the absence of such accommodation, in any hot sunny place you have, as under a south wall on a bed of coal-ashes, or in a sunny window. When they have filled their pots with roots, shift them into what are called 60-sized pots, and in those pots let them pass the winter. The most useful varieties to propagate for bedding are Stella, Cybister, Kate Anderson, White Perfection, H. W. Longfellow, Lucius, and Duchess of Sutherland. Of fuchsias make sure of Bo Peep, Sir Colin Campbell, Venus de Medici, Excellent, Duchess of Lancaster, Clio, and Floribunda; and if you contemplate using fuchsias as bedders secure Alpha and Count de Boileau, the two best to weather the chances out of doors, whether the season be good or bad. In a good season all the free-growing fuchsias, double ones included, do well in beds; Gazania splendens will always be a favourite for rockeries, baskets, and roots in sunny positions. Now is the time to put in cuttings, as they can be got without spoiling the appearance of the blooming plants. Fill pots or boxes with any poor sandy stuff, with plenty of drainage; make the cuttings of growing shoots in preference to old woody stems, and dibble them in about an inch apart all over, and in those pots or boxes let them remain until they begin to grow in spring, when they must be potted singly. Among seedling lobelias will always be found a few better than the rest, and worth keeping on from cuttings. If these are allowed to bloom themselves out, and are then potted just at the commencement of winter, they will probably be lost. Lift a chosen plant now, and spread the growth of its neighbours right and left to fill the place; clip off the blooming stems, and pot the plant in a five or six-inch pot, in a mixture of turfy loam one half, and the other half rotten dung, leaf-mould, and silver sand. When watered, shut it up in a frame for a week, then put it out of doors, and let it grow as it likes till the end of the season, when house it, and in spring force it into growth for cuttings. dozen plants treated in this way will supply cuttings next season for a garden of almost any dimensions, but if taken up at the end of the season they rarely live through the winter. Treat petunias and verbenas in the same way, or as these strike now, and have plenty of time to grow before winter, secure cuttings of the kinds most in request, treat them the same as recommended for fuchsias, or if you have a gentle bottom-heat, place them on it, and their progress will be safer. These may be got into 48-sized pots before winter, so as to be strong and serviceable to furnish cuttings next spring; whereas, when old plants are taken up in October or November, there is a great probability that many will die in the February following. It may be worth something to amateur readers to know that seed of lobelias can be saved by simply cutting off the tops and laying them to dry on a cloth in a sunny place well sheltered from wind. The seed will fall out in the form of fine dust, and every pinch large enough to cover a shilling will be worth a shilling, and produce its three or four hundred plants. If these plans are considered troublesome, there is yet another way of making sure of store plants to propagate from. At the end of September, take up two each of all the varieties of verbena, petunia, tropæolum, and other soft-stemmed trailing bedders, lift them with as little damage as possible to the roots, put them in five-inch pots, and place them in a west aspect, with very little water at the root, but a sprinkle overhead every morning. Do not cut them back, but let them flower as they please till there are signs of frost, then trim them in moderately, tie their long stems to

sticks, and house them. By being potted while they have a full month to recover, they will go through the winter well, and furnish shoots to propagate from in spring.

CULTIVATION OF THE VARIEGATED CYPERUS ALTERNIFOLIUS.

BY RANSLEY TANTON, F.R.H.S., NURSERYMAN, EPSOM, SURREY.



EW plants of modern introduction really deserve more attention than the *Cyperus alternifolius*. Its graceful beauty justly gives it claim to be considered one of the most conspicuous of fine-foliage plants, and yet we seldom see it either grown as a fine specimen or

luxuriating with that degree of vigour which is essential to the development of its peculiarly high and characteristic elegance. An unhappy stunted form of growth, with almost every alternate leaf diverging; from the true character, is the general aspect of plants one is accustomed to see, both at exhibitions and in private gardens; and in the hands of manipulators, too, whose other performances

would lead us to expect better results.

There are two reasons to account for this failure: in the one case a better knowledge is required of the peculiar requirements and habits of this charming exotic sedge; in the other the variety is at fault. As in the case of many other forms of beautiful plants, there have been distributed of this two distinct varieties. One is the true plant as imported, and increased by division; the other, speaking of the aggregate as one, consists of seedlings which have been raised from the true variety. Young plants, propagated from the former by division, always retain their character, which is typical of tall, slender, vittately-marked footstalks, surmounted with a whorl of leaves about half-an-inch broad and upwards of a foot in length, and bearing the same character as the stems. The regular alternate lines of pure white and green, together with the pendulous habit of the whorl of leaves, give a well-handled plant a most refined and imposing aspect. Seedlings seldom, if ever, acquire this beauty; their habit is dwarfed, the leaves generally push up green, are shorter, with the markings inconstant and indefinite, and withal are plants of no beauty in comparison with the true variety. I find propagation by division of the root can be done at any season of the year, and if your plants are rooted by the month of March they will make nice plants, bearing from four to six good leaves by the following autumn. In potting, the several materials should be well prepared and incorporated—namely, fibrous peat, leaf-mould one year old, very old brick mortar, wood charcoal reduced to powder, potsherds broken very fine, and very sharp silver sand, in about equal proportions. The pot must be well drained, and a layer of cut sphagnum laid upon the drainage, upon which place the ball of the plant, carefully packing the material

round, and pressing the mass gently to render all firm. The plant should then be put into a cool division of the stove, where plenty of direct light is secured. This is necessary to prevent a too great accumulation of chlorophyl-that is to say, a tendency to too great an accumulation of green in the leaves. This plant is semi-aquatic, and, with free and unimpeded drainage, delights in moisture. I find large pans filled with pebbles and water to the rim, in which the plant should be placed, most beneficial. The moisture imbibed by those roots ramifying amongst the drainage, and the slow and constant evaporation of moisture immediately around and beneath the leaves has the effect of increasing the vigour, and thus enhancing the beauty of the plant. It likewise acts as an antidote to all kinds of insects. A moist genial atmosphere must be secured by the free use of the syringe throughout the summer, and until the month of October, when atmospheric moisture must be partially withheld, and the plant taken off the moist pebbly pan, and kept drier throughout the winter or resting season. It is when in this condition that the plant really should be propagated. The ripe side eyes, if judiciously taken off, will readily root. From the specimen in my possession, and which has received high honours from the Royal Horticultural Society and other metropolitan exhibitions, I have this season secured upwards of two hundred fine young plants, all possessing those charming attributes of character of which my specimen is characteristic.

THE PHLOX.

BY KARL PROSPER.

NOBLE plant is the Phlox, and worthy of our best attention. It is a flower of summer's maturity, strong, and fresh, and vigorous, richly tinted as becomes the blossoms of July, with none of those doubts associated with it that often are with the flowers of spring,

which generally push forth under difficulties, and are frequently cut off ere their beauties are seen. It is everybody's flower, because it will grow almost anywhere; and it is at the same time an ornament of the first order for the most extensive gardens in the land. Coming in before the gladiolus, it may be made a grand use of for the garden of plants in the open air. It may be used into the beding system, in the mixed border; or, in a word, in any place where hardy plants are grown. The Phlox, therefore, is a flower that everybody must grow, and, we hope, enjoy. It is of easy culture, and very hardy. In some soils Phloxes spread out into great tufts, and preserve their perfect health for years; but, about London generally, a system of annual propagation and planting must be kept up, where it is desired to make the most of this fine flower. Thus, the great growers and raisers of Phloxes generally put a few plants in a frame in mid-winter—say January or February—and as soon

as these push a little, they take cuttings of them in the ordinary way, and hardening them off with the bedding-plants, put them out in May. If there be any cheap turf-pits in the place, they may be brought forward excellently in such. It should be observed that this method is quite unnecessary for the mere propagation of the Phlox, which is multiplied as fast as could be desired by dividing the roots; but it is the best way to get strong and independent young plants; those entirely started on their own basis, and with young roots, being better, stronger, and fresher than bits of the old roots. But it should be observed, that if in breaking the old roots up, the young part of the root only be retained, or, in other words, the part with the young fibres adhering to it, it will prove more vigorous; and this applies to nearly all herbaceous plants. It is just like potting the suckers of cinerarias. Suppose you put a piece of the old root with one of them, by way of encouragement, or even the old root itself, what good will it do? Probably remain a miserable object all its life; while a young sucker, taken off with a few young white fibres pushing out from its base or button, grows as heartily as a flat Dutch cabbage. As for the soil for the Phlox, we need not be very particular. It likes it rich, it likes it free, and it likes, as most plants do, a good open position. Some people have a weakness for putting things of this kind in the shade, or shelter of all sorts of things; but, depend upon it, that there is nothing like the full, free sun in our variable climate. The owner of a collection of Phloxes, or one who takes much interest in the family, will do better to have his well-named and best varieties planted together in a favourable spot, even if he use many kinds largely, for the general ornament of his garden, while people in general had better think how it may be best employed to lend beauty and interest to the garden. For all border-work it is fine, and also for forming grand mixed beds of such things as are the better for annual removing, like the Delphiniums, some of the best Achilleas, etc.; among which could be sprinkled Gladioli in profusion. A splendid use to make of them would be to associate them with Gladioli, or, in other words, plant the bulbs of that fine plant in the spaces between the Phloxes in a bed. This would be a capital system in places where autumnal decoration is the chief desideratum, and there are very many such. As for the selection, it is a comparatively unimportant matter, because all the kinds are good and beautiful, though it is nevertheless necessary to name the best and most distinct, with the most recent improvements, at the end of the paper.

The Phlox is generally best in the second year of its existence, and as it then pushes up more shoots than it is desirable to retain, if we wish for a good and strong bloom, it must be thinned out to—say five or six stems—using thinnings as cuttings, if it be desired to much increase the variety. When the Phlox is at first planted out from the cutting, or young plant state, it had better be planted pretty close; but the second year they will be the better of standing about two feet apart, and had better be taken up, and placed at that distance apart, at any convenient time in winter or spring. Once past their second year of flowering, they are frequently thrown

away by growers, who treat the plant as a florists' flower; but, of course, those who desire to use them for embellishing the margins of shrubbery, etc., will have no hesitation about doing so. Indeed, where the soil suits the Phlox well, and the amateur or gardener does not regard it as a florists' flower, the annual propagation is by no means necessary, and the plant may be treated exactly as an ordinary herbaceous one. The first year of their existence, and the first year of their flowering, they do not rise too high to be associated with plants that grow about sixteen or eighteen inches high; but in the second year they usually rise much higher, and will prove meet companies for dahlias, early asters, and things of like height.

Many of the species of Phlox are in cultivation, some of them excellent for rockwork, etc., and therefore we give a list of them, with the best marked (*). They are generally very dwarf, and

excellent for the spring garden :-

Phlox canadensis, P. divaricatus, P. frondosus, P. Nelsoni,* P. nivalis, P. ovatus, P. ovatus Listoniana, P. pilosa, P. procumbens,* P. setacens, P. subulata,* P. verna,* P. suaveolens fol. var.

A concise and varied selection of the best of the newer kinds:—Madame Corbay, Madame Duchemin, Comtesse de Turenne, Madame Lemont, Madame Rosay, Monsieur de Launay, Monsieur Donnaud, L'Abbé Roussel, Lucien Tisserand, Madame Devilliers, Madame Emarant, Madame Herbeaumont, Rêve D'Or, Monsieur Mittivier, Monsieur Paulmier, Liervalii, Etoile de Neuilly, Mademoiselle Christine Nilsson, Prémices du Bonheur, Roi des Roses, Vierge Marie, Figaro, Géant des Batailles, L'Avenir, Madame Lecomte.

NOTES ON MESSRS. F. AND A. SMITH'S TRICOLOR AND BRONZE ZONAL GERANIUMS.



T Messrs. F. and A. Smith's nursery, Park Road, West Dulwich, is one of the finest collections of varieties of these attractive plants. Having lately inspected them, we offer the following notes on their characters and qualities:—

Aureum, a golden-leaved variety, of the brightest tone of yellow, with trace of a zone. The flowers are clear delicate cerise, produced in abundance. As a bedder it is unique; the leaf bright enough to allow of the removal of the flowers, yet the peculiar tint of the flowers renders this less necessary than in the case of strong scarlets.

Alhambra, a gold zonal, in the way of Mrs. Pollock, but surpassing it in habit and colour; the best bedder at present of this group; colouring brilliant.

Aurora is a gold zonal, with large bold leaf, and most brilliant tones of yellow and red; a most grand and telling kind, whether in

a bed or a pot.

Brunette, a bronze zonal; the disk and edge greenish-sulphur,

the zone bright russet-red; habit compact, and the leaf a model of form.

Charles Dickens, a golden zonal; the leaf very flat, a good grower, very constant in colours, margin clear lemon-yellow, zone rayed dark and red; sometimes a self zone of the brightest vermilion; a splendid variety.

Combatant, a bronze zonal; the disk and margin greenish-yellow,

the zone approximating closely to a carrot-red.

Coronet, a bronze zonal, remarkably neat in habit; leaf round and flat, a bright green disk, the zone rayed black and red; splendid.

Criterion, a bronze zonal; the disk and margin sulphur, the zone rust-red; the leaf round and flat, and most brilliantly coloured.

Crystal Palace Gem, a golden-leaved variety, with the flowers of Lady Middleton. The leaf is superb, being slightly blotched with bright green—that is to say, the disk is irregular and small; the remaining part of the leaf rich sulphur-yellow.

Defiance, a gold zonal, the margin bright yellow, the zone rich carmine, red, and black; the growth admirable; a superb variety.

Eclipse, a gold zonal, the leaves too deeply lobed, the yellow margin bright yellow, the zone brilliant vermilion-red. In colour this has no parallel, but the deeply-indented leaves are objectionable.

Gladiator, a bronze zonal, and the most brilliant possibly of all known varieties of this section; neat medium habit of growth; the leaf round and nearly flat, the disk and margin sulphur, the zone clear chesnut, just the colour of a chesnut newly removed from the green husk, which is the most beautiful tone of brown known in natural colouring.

Golden Globe, a golden-leaved variety, of compact habit, with beautiful cerise flowers. This is as good for pot culture as for

bedding, and first-rate either way.

Impératrice Eugénie, a silver zonal, margin creamy white, zone bright pink and black, the habit neat and compact, in growth almost

a miniature; a charming variety for small beds and vases.

Jetty Lacy, a gold zonal of the finest character, the leaf narrowly margined gold-yellow, zone intense chesnut, red, and black; habit all that can be desired; a grand exhibition variety. In the open ground this grows well, and is most striking.

L'Empereur, a gold zonal; the margin broad and bright yellow, the zone brilliant black and vermilion-red; one of the most splendid of its class, and in form of leaf and habit of growth first-rate.

Louisa Smith, a gold zonal, leaf margined with clear yellow, which, as in the case of Mrs. Pollock, fades to whitish; zone bright red and black. This is of vigorous habit, and at first sight an inexperienced judge would proclaim it the same as Mrs. Pollock, but when out of doors it is quite distinct and a better grower; one of the best, in fact, in this glorious class.

Miss Burdett Coutts, a silver zonal; the disk green, broad whitish edge, zone rayed dark and brilliant carmine. A fine variety of a

class at present too limited.

Model, a bronze zonal; flat round leaf, disk and edge canary-

yellow, with a tinge of green; the zone a clear red; peculiar and first-rate.

Morning Star, a bronze zonal; disk and margin a lemon-yellow,

zone a remarkable shade of cinnamon passing into red.

Mrs. Charles Barry is a bonze zonal, superior to Luna; the flowers scarlet, the zone bright and ruddy; habit rather robust, and in a bed most effective.

Pet of the Parterre, a golden-leaved variety; the leaves yellowishgreen, flowers rich scarlet; one of the best bedders on the ground.

Peri, a silver zonal, in the style of Italia Unità, but brighter; the margin is pure white, the zone brilliant rosy-lake. Far superior to Italia Unità.

Plutus, a bronze zonal of most remarkable character; the leaf round and flat, or but slightly convex; the disk and edge canary colour, the zone bright rufous-red. This is one of the most brilliant and distinct of the family, worth any money; a bedder too, and for exhibition capable of the greatest things.

Queen of the Fairies, a silver zonal, margin white changing to cream, with a soft tinge of blush; zone deep rosy-lake and black;

most beautiful, chaste, delicate, unique.

Souvenir de Sir Joseph Paxton, a gold zonal, the margin very narrow, but very bright gold-yellow, the zone deep crimson, red, and black; as the leaves acquire age they change to a soft rosy zone and paler yellow; a good plant, shows a variety of colours, all good.

Standard is a bronze zonal; the leaf round and flat, a "standard" of form for judging; the leaf has more green in it than that of Criterion, and the zone inclines more to chocolate; rich, decided,

beautiful.

Sunray, a gold zonal, margin bright yellow, zone rich magenta with shades of black; one of the best of bedders, superb also for pots.

The Moor is a bronze zonal; sulphur disk and margin, zone rich

reddish-chocolate; first-rate.

Vandyke, lighter in the zone than Mrs. Barry; pretty, distinct; the flowers rosy-salmon. Good for a collection, but not wanted where a few are grown.

S. H.

EARLY-FLOWERING PLANTS FOR THE GREEN-HOUSE.

N the months of February, March, and April, every expanded flower arrests more attention, in fact, appears more lovely, than at any other period. Winter is just loosening its icy hold. Nature wears a reviving aspect, and our spirits becoming exhilarated by a lighter air and the approach of joyous summer, we look around for some lovely object of creation on which to realize, for the moment, our often

vague anticipations. It is yet too early to expect much variety in the borders of the flower-garden, and the greenhouse is the only source which will yield the desired pleasure; and here, too frequently, we meet only the chilling aspect of green leaves or bare stems. This, of course, depends on the selection of plants when furnishing the house, and may, therefore, be easily obviated. I subjoin a brief notice of some that bloom at this desirable season, with some remarks on their management. There are, doubtless, many others equally suitable, but even those enumerated will be sufficient to remove the blank so much to be complained of.

The genus *Epacris*, from containing so many interesting varieties, must be considered indispensable. Some or other of them may be had in bloom from December until June. They delight in fibrous peat, broken rough, and fine white sand. The young plants should be frequently stopped, by pinching off the points of the shoots while growing, to induce them to throw out laterals; these again should be stopped until the plants have attained a size sufficient to warrant

their blooming.

The pretty Cosmelia rubra occurs next in order. Its habit and manner of flowering closely resemble that of the Epacris, though the flowers themselves are larger and more deeply coloured. It succeeds under the same treatment.

Fabiana imbricata, although recently found to be sufficiently hardy to bear exposure to our winter, still merits a place in the greenhouse, on account of its precocity and its lovely heath-like pure

white blossoms.

Pultenia stricta, an old and somewhat neglected, yet certainly beautiful, species; when properly managed, is highly desirable; its spikes of bright yellow and red, pea-shaped flowers, copiously produced, render it a most pleasing object. This plant should be pruned closely back as soon as the flowering is over, which will keep it dwarf and handsome.

Chorozema. I need not enlarge on the beauties of this genus; it is universally grown, and therefore needs no commendation. A large pot and frequently stopping will speedily produce fine plants.

Eutaxia myrtifolia is, like the Pultenæa, a plant whose beauty depends entirely on the management it receives. During the summer and autumn every new shoot should be stopped as soon as it has attained two, or at most three, joints: thus it may be formed into an extremely neat compact dwarf shrub. It is a most profuse bloomer.

Pimelea. This genus, with its capitate heads of lovely pink, white, and red flowers, may be classed among the best of greenhouse plants. They are generally of easy management, though I have found some difficulty with P. spectabilis, when growing on its own roots: it appears to do better and live longer when grafted upon another species.

Diosma capitata is closely allied to the Pimelea; the colour of the

flowers is a lively lilac.

All the above plants succeed under the same treatment: they delight in sandy peat containing plenty of fibre, and require plenty

of air at all times, and should be kept constantly moist, though never saturated, with frequent stopping, to keep them close and dwarf.

Next to these is the *Genista*, with its splendid corymbs of bright yellow blossoms; these require rich turfy loam to grow in, plenty of air and water, and but very little pruning, being naturally close, com-

pact-growing plants.

The Boronias, too, are charming plants; though not quite so early to flower as some others, yet in April and May they are fine objects; the prevailing colour in their flowers is a rich rosy red. They should be grown in peat, loam, and sand, and make rapid progress when grown in large pots.

Oxylobium retusum and oboratum are two fine plants, affording a pleasing variety among the other plants named, from their more robust habit and larger foliage. The flowers are papilionaceous, of a bright

orange and red: fibrous peat suits them best.

Among these we have nearly every colour except blue, and this may be had in *Kennedia monophylla*, a lovely climbing plant, bearing copiously racemes of blue and white pea-shaped flowers. It delights in peat and loam, and should be trained upon a wire trellis. It

requires but very little pruning.

Lechenaultia formosa is a delicate low-growing plant, rather difficult in its management, but when seen in good order, a most lovely object, being densely covered with small bright red flowers. It requires to be potted in fibrous peat with nearly an equal quantity of silver sand; a few rough pebbles mixed in the soil will induce it to root more readily. An abundant supply of air and water should be given it during summer, reducing the quantity of each on the approach of winter.

The above selection, with the assistance of a few azaleas, camellias, and rhododendrons, would render a greenhouse all that could be desired for the first three months of the returning season, when they would be succeeded by the pelargoniums and other summer-

flowering plants.

THE ANGULAR PRICKLY SHIELD FERN.

HIS beautiful hardy fern may be found in every choice garden, and is frequently valued as a greenhouse plant, but is not much known in gardens where ferns have only casual or accidental notice. It is remarkable for richness of character, freshness of colour, and distinctness, and

it is so accommodating in constitution that a very little care is needed to insure a vigorous growth. The principal features of the Angular Prickly Shield Fern, Polystichum angulare, are the following:—A thick, tufted, scaly, and sometimes semi-treelike caudex; fronds two to four feet high, usually lax, spreading, the stipes and rachis densely scaly, and a rich brown colour; pinnæ numerous, linear-lanceolate, those near the base usually diminishing, but sometimes enlarging



POLYSTICHUM ANGULARE.

in length; pinnules crescent-shaped, with a distinct anterior lobe or auricle; the colour a full rich deep green. Fructification dorsal, occupying the greater part of the fronds, sori forming a line on each side of the mid-vein, usually crowded, spore cases a rich brown colour. In what is considered its normal form, that is to say the species, and which is here figured, the fronds are usually arranged in a spreading, arching circlet round the crown, but in the varieties this character is more or less departed from, and especially so in those that are proliferous. In addition to its richness of character in colour, form, and divisions, this fern has the advantage of being perfectly evergreen, and thoroughly hardy, and equally adapted for culture under glass and in the open air. I am acquainted with about sixty varieties of P. angulare, and I should give precedence to the following for a choice collection:—

P. a. affine.—The pinnules are roundly sickle-shaped, with fine teeth along their margins, growth robust, and in several points resem-

bling that of P. aculeatum.

P. a. convexum.—The pinnules strikingly convex; a rich bright variety.

P. a. cristatum.—The pinnæ beautifully tasselled.

P. a. decompositum.—Very finely divided, extremely elegant when grown to a good size.

P. a. dissimile.—Fronds variable in character, interesting and

curious.

P. a. grandidens.—Thick-textured, dark green, terminating abruptly, as if cut at the point, or with horn-like processes at the apex, the pinnules have sharp and prominent teeth. One of the most interesting of all.

P. a. imbricatum.—Pinnules scarcely lobed, crowded, and over-

lapping; rich and distinct.

P. a. Kitsonia.—A robust and beautiful variety, the fronds of which are elegantly tufted at the apex, pinnules very much and finely toothed.

P. a. plumosum.—Fronds two and a-half feet long and seven inches wide, pinnules of great size, thin in texture, light green in colour, and deeply incised. Undoubtedly, the most splendid of the series, and abundantly suitable to grow for exhibition.

P. a. polydactylon.—The apex and the pinne forked and branched, pinnules wanting in some parts of the frond, in other parts very

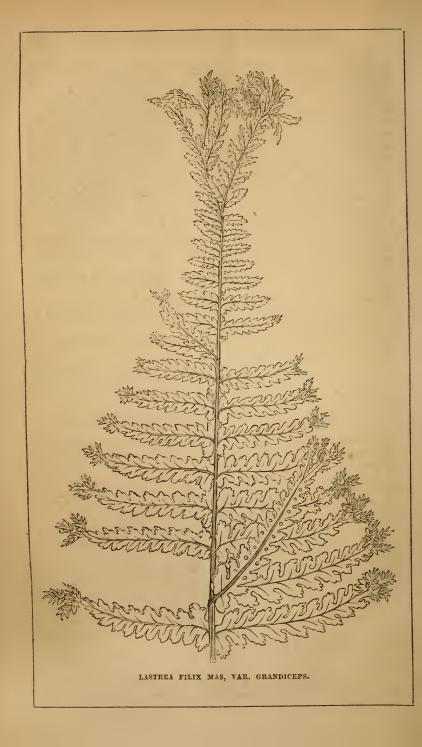
small. Elegant and curious.

P. a. proliferum.—This is the greatest favourite of the series for bouquets, and in almost every greenhouse a few plants may be found. It is extremely elegant in form and brightly coloured, and notable for its tufted growth, every mature frond bearing near its base one or more young plants. If these are removed and planted in sandy peat, and put in a close, shady, moist place, they soon emit roots, and become independent plants.

P. a. Footi.—A pretty proliferous form, the pinnules acutely

serrated.

P. a. Wollastoni.—A rich and robust proliferous variety, more finely cut and of more lax habit than proliferum, and one of the best in cultivation.



P. a. pterophorum.—Fronds broadly lanceolate, pinnules large and crowded, beautiful and distinct.

P. a. stipatum.—Fronds lanceolate, pinnules broad and over-

lapping, and appearing crispy, fine, and distinct.

P. a. parvissimum.—Messrs. Lucombe, Pince, and Co., of Exeter, supplied me with a small plant of this variety two years ago. It is now a fine specimen, remarkable for its dwarf habit, and the imbricated or overlapping arrangement of the pinnules; certainly one of

the prettiest varieties in cultivation.

To cultivate any of these varieties successfully, a little more than the ordinary care required by hardy ferns must be bestowed upon In many positions where the common male fern would thrive, the angular prickly fern would quickly perish. Shade, moisture, and a rich soil are the principal requisites, but the drainage must be at all times perfect. They may all be grown well in sandy peat, but a mellow, hazelly loam, with a fourth part of rotted turf or leaf-mould added, is preferable. A pasty soil will never do; therefore, if the staple is not naturally gritty, add sharp sand, or fragments of broken sandstone in sufficient quantities to render the soil granular and porous. They will all thrive when their roots can freely penetrate rotten or decaying wood; hence they are well adapted to plant amongst roots and butts of trees in shady places. They are all well adapted, too, for ferneries under glass, and, if judiciously distributed, add very much to the interest and beauty of the scene.

LASTREA F. M. VAR. GRANDICEPS.



day." But I bring it forward now with a special recommendation to all collectors of varieties to secure it, for I find that as it acquires age, new and splendid characters are developed; and my best plant is now so densely crisped and tasselled, as to present quite a remarkable appearance. The figure shows the first form of the variety, the apex being elegantly forked and tasselled, and the pinnæ terminate in tasselled tufts. Every year these forks and tassels increase in number and density, and the plant at last becomes a most fit and proper companion to that grandest of the series, L. f. m. cristata. All our best plants of the crisped varieties of hardy ferns are grown constantly under glass, a method which secures richer development and unchangeable brightness and beauty. S. H.

CULTURE OF THE ORANGE.



NCE the Citrus Aurantium, or common Orange, was the most fashionable and prevailing ornament of the greenhouse and conservatory, and it is still, though so much neglected, well deserving the little skill and attention necessary to its growth. Its beauties are known to every one at all

conversant with horticulture, and therefore they require no encomium, though were it only for the pleasing associations so intimately connected with the plant, room should be found for it in every suitable plant structure of the least pretensions. "It is," as Loudon has observed, "one of the most striking of fruit-bearing trees, and must have attracted the notice of aboriginal man long before other fruits of less brilliancy, though of more nutriment or flavour."

The first requisite to the culture of this noble plant is a strong rich soil, composed chiefly of friable loam from a common or pasture, with the addition of about a third of old hotbed manure, and a rather less quantity of peat or clean sand; these thoroughly incorporated, afford a highly nutritious medium for the roots. The only other point of consequence in their management is to provide an agreeable temperature and some slight shade while the new wood is being formed: the usual greenhouse treatment will preserve them in excellent health at all other times, but then they require, and must have, if luxuriant plants are desired, a close humid atmosphere, with a temperature of about 60°, and protection from the sun's rays until the new growth is completed.

Very little pruning is best for them, only just to keep them in order and proper form, except in the case of old trees that have become naked and unsightly; these are much benefited by severely cutting back, being at the same time repotted and placed in heat, to induce them the more readily to form a new and luxuriant

growth.

Oranges are frequently infested with two troublesome insects, the scale and mealy bug. The most effectual remedy for them is, sponging all over the plant with warm soap-suds, and afterwards cleaning with the syringe; attention to the above, and the usual routine, watering, etc., with an occasional supply of liquid manure, will insure handsome healthy plants, and plenty of fruit. W.

ERANTHEMUM PULCHELLUM.



RANTHEMUM pulchellum is a native of the East Indies, whence it was brought about the year 1796. Some time since the name was changed. There are, or were, three species of Eranthemum—all of them ornamental; but the finest is certainly the present subject, producing

its spikes of beautiful blue flowers from January to October.

In cultivating it, the first essential is a proper soil: the most suitable is a mixture of about two-thirds sandy peat, and the rest turfy loam; if more loam is used, the plant often assumes a short stunted growth, and does not produce its flowers so freely or so fine. In potting, the soil should not be broken too much, but used rather rough; this allows the water to percolate through the entire mass more regularly than when packed in closely. When potted in the spring, plenty of room should be allowed the roots, as they grow rapidly, and they may be reduced for the winter potting. At each shifting a good drainage must be provided by placing first a few pieces of broken pot, and on them some rough pieces of turf or peat. The plant delights in a moist heat during the growing season, which commences with it about the middle of December.

Seasonal treatment is of vital importance in most cases, but with respect to the plant under consideration, the difference need not be so strongly marked; though a reduction in the size of the pot, and so of the quantity of earth, and also of moisture, both topical and atmospheric, should be observed at the close of the growing season, which, as with other plants, occurs about September; the plant is then in a better state to pass through the winter, and to receive an increase of stimuli at the season of increasing vigour. It may be observed that as the plant produces its flowers from the points of the current year's shoots, or on the new wood, more flowers will be produced by pruning every branch at the time of shifting for the winter, which should be done at the usual period for such work—September.

J. E. B.

RAMBLING THOUGHTS.

H, let us leave these scenes of strife To learn a happier mode of life, And, far from city and from town, Our days with sweeter moments crown; To ramble o'er the flowery heath, And gather Flora's wilding wreath; And over glen, and wood and dale, And barren moor and fruitful vale; And through the arches tall and wide Of trees that grow in ancient pride; Over the fen and wood-crowned hill, And down beside the pebbly rill; Over the green and mossy bank, Where harebells grow all fresh and dank; Or in the cooling forest brake, The echoing songs of birds to wake; And hear the blackbird's joyous notes, Whilst on the breeze sweet music floats; To lie beside the mossy brink Of fountains where the red-deer drink; Or on the cooling margin stray Of laughing brooks, that glide away

To greenwood shades, where silent birth Is given to buds that perfume earth; To waving groves and sunny fields, Where Nature still fresh beauty yields ; To watch the early morning gleams, And hear the sound of dashing streams; As down the craggy cliff so tall, They fearless leap the cascade wall; To gaze upon the silver sheen, Where floating islands ever green Lie softly on the rolling tide, Which sweeps along so deep and wide; To find in every flower and leaf An antidote to care and grief; To hear in every morning breeze, And in the midnight sound of trees, A cheering voice to teach the way To gain each morn a happier day: Still whispering Hope, and Joy, and Rest, To soothe the soul, and make it blest; And in the heart's deep crystal tide, The scars and stings of Grief to hide; Or when the moon is marching through The midnight arch so round and blue, To rove upon the soft green sod, And view the starry liests of God! And while our souls seem borne away, To feel ourselves as grand as they, To seek the joy of worlds above, And grow in warmth of Praise and Love.

DESIGNS FOR SELECT BEDS OF HARDY PLANTS.

AVING so often spoken in praise of the finer hardy plants, and advocated their being more extensively used, we now proceed to point out how they may be arranged with the best result. Never within the history of British gardening have they been well planted out. We have either an ugly mixed border or nothing at all. This article is written to

explain how the finer hardy plants may be arranged in a satisfactory way, and one, moreover, which will be a source of lasting beauty, without any annual trouble,

such as is given by the tender bedding plants.

First, then, for a noble circular bed in an isolated place, say on some little glade of grass where there is a recess in a shrubbery, where you, perhaps, never thought of putting anything. Have a bed thoroughly well prepared in the first instance, say 8ft., 10ft., or 12ft. wide, according to the size of your place, or the nook in which you plant. What we mean by well prepared is, that the soil should be rich, free, well drained, and 3ft. deep, if possible. As one preparation is all that we require, no sensible person will begrudge the labour necessary in the first instance. Care should be taken that the far-searching roots of trees do not get to the soil of the bed, and rob the plants of their nutriment. In a word, though the bed will be the better for being associated with handsome shrubs and trees, it must never be so placed as to become a mere trough of rich food for trees with voracious appetites. As the kind of arrangements we are about to recommend give no trouble after the first planting, they should get the best attention at first, and then they are finished for years. It is a most unsatisfactory, and to some extent contemptible, mode of gardening, that of continually "muddling" over the same ground, spring after spring and autumn after autumn, and we continually labour in the hope of giving it a death-thrust some day. Doubtless, it is

necessary to do it for some things, and may always be so to some extent; but to have all the skill and labour thrown away upon fleeting things is really stupid, and totally opposed to any permanent or dignified work being done in the garden. The best and highest pleasure to be derived from our gardens will soon be found to lie in those things which, when once well done, we may leave alone for years, and in some cases for the course of our natural lives and the lives of those who come after us. A result of this kind is now, and has been, frequently attained with trees, etc. Our desire is to apply more and more to such things, but at the same time to the humbler, but more immediately attractive world of flowers. So, to commence with bed No. 1, we will place a good plant of the very tall and late-flowering Tritoma grandis, and then around it a circle of the excellent and somewhat smaller T. glaucescens. Follow that with a ring of the beautiful white Anemone Honorine Jobert, and the showy and splendid Rudbeckia Newmanni, mixed plant for plant; and outside of that again place a circle of the fine new herbaceous Sedum spectabile (sold and known as S. fabaria). This Sedum will form a grand edge to the bed, and flower, like its fellows, finely in autumn; while immediately outside of it, and between it and the grass, might be planted a line of Snowdrops, or Scilla bifolia, or both mixed. These would flower, ripen their leaves, and perish before the stronger margins started up. The above would form a grand autumn bed, and a noble object from any point of view-its aspect all through the spring and early summer being fresh, healthy, and in every way unobjectionable in such a position as we have indicated for it.

Should any reader be unable to procure the above plants in sufficient numbers to make such an arrangement at once, he may soon obtain them by planting what he has got of each in good ground. We shall confine ourselves as much as possible in dealing with this subject to things that everybody can grow and obtain without difficulty; and we would advise every amateur and every gardener to have a good rich border in which to plant his first stock of each good thing, in which it might increase with rapidity and become ready for any use that may be designed for it. Of course we may plant them in borders and the like, and take them up and divide them; but much the best way is to have a border of good earth, in which they may be planted in rows, and where all the new and rare hardy plants may be looked after conveniently. Many a new subject gets an undeservedly bad character from being placed among a mixed and already established lot, which shade or otherwise injure it. When we get a new plant we immediately look to see if there be a possibility of dividing it, and in nine cases out of ten there is. We then carefully pull the roots apart, save every shoot or division, however small, and place them in a line in a border of good soil, and thus get each bit to make a capital plant, in as quick time perhaps as the complete root would make one if planted undivided—indeed, often more so, for young plants of this kind frequently grow quicker than

No. 2. This shall be an evergreen bed, highly suited for a position near small clumps of choice shrubs, or indeed anywhere that a place may be found for it. In the centre a healthy, good young plant of Yucca gloriosa, and around it a ring mixed of Yucca filamentosa and flaccida mixed. These two kinds flower regularly and well. If among them you could thoughtfully insert a few roots of Gladiolus in early summer, they would add very much to the effect of the white flowers of the Yuccas. Around the Yuccas place a ring of Iberis saxatilis, and around that a ring of that capital little spring plant, Erica carnea. Finally, if there be room—and if you have your bed in an isolated spot you can of course make it as wide as you like—put a little cushion of the beautiful Aubrietia grandiflora all round your Erica carnea; and if you have a few Crimean or common Snowdrops, or Scilla bifolia, to spare, to drop here and there between the Erica and the Aubrietia, we don't think you will regret it.

old tufts.

No. 3. This shall be a grand bed of Lilies. Unhappily, the fine hardy kinds of Lilies are anything but as plentiful as we could wish them, though in a free rich soil they increase readily enough. Few, indeed, will have them sufficiently plentiful for some time to make beds of them, but when once people know how truly fine they are when seen well arranged in a large bed in an isolated place, they will hardly rest content without such a glorious garden ornament. With such kinds as Lilium testaceum and tigrinum Fortunei in the centre, surrounded by the queenly candidum, burnished croceum, spotted canadense, pomponium, colchicum, vivid chalcedonicum, and gradually worked down to the edge with dwarf but beautiful

kinds like pulchellum, eximium, longiflorum, and tenuiflorum, a large circular or oval bed might be made on the grass, in some isolated spot, which, for the highest beauties of colour, form, and fragrance—for, in fact, almost every quality by which vegetable beauty endears itself to us—could not be equalled by any arrangement of indoor or outdoor plants that we can call to mind. The only precaution we need mention is, that to grow lilies well they should have three feet, or nearly that, of free loamy earth, with a good dash of vegetable mould in it. Even now such kinds as L. tigrinum, longiflorum, candidum, croceum, bulbiferum, etc., are to be had pretty cheap—although the chief thing that gardeners have been doing with the hardy Lilies for some time past has been to throw them on the rubbish heap, to make way for such glorious stuff as the yellow Calceolaria and the red Geranium.

No. 4. A mixed bed, carefully arranged as to height, and tastefully as to the quality and disposition of the contents. In this kind of bed we should, of course, have no band or circle whatever, but simply a careful following of the old mixed principle. We doubt if we could find a better centre for this type of bed than a good kind of Perpetual Rose, grown upon its own roots, or worked very low, or trained as a pyramidal bush—say four feet high, more or less, according to taste—and the subjects to be grouped in the bed. No weedy subject should occur in a bed of this kind, but, on the contrary, everything of the most distinct beauty. You may employ in such a bed anything, from a tuft of Campanula carpatica bicolor on its outer edge, to the choicest pink Phlox or Picotee, the newest Delphinium, or the oldest spring flower. To specify a few choice things for such a bed, we will name-for the middle parts and around the central subject, Platycodon autumnale, or P. grandiflorum, Delphiniums (some of the newer and better varieties), Aconitum variegatum, Achillea filipendula, Poloxes, Campanula persicifolia alba and C. coronata, Iris jacquesiana, pallida, and De Bergii, with a host of others equally good. For the middle region of the bed such plants as Dielytra spectabilis, Trollius napellifolius, Armeria cephalotes, Hoteia japonica, Pentstemon in its best forms, double Wallflowers, Achillea ptarmica, fl. pl., would do charmingly; while near the margin such dwarf beauties as Cheiranthus alpinus, Ranunculus amplexicaulis, Achillea aurea, the Iberises, the dwarf Phloxes, a few of the better Sedums and Sempervivums, an odd neat variegated or silvery plant, and even little tiny shrubs like the charming Gaultheria procumbens, will prove quite attractive. This kind of bed

admits of infinite variety and lasting interest.

Next we come to No. 5. A bed of beautiful hardy foliage plants, interspersed with good bulbs or other spring-growing flowering things, which will show above the foliage and amongst it. In this way we may have two distinct styles—one of dwarf, neat objects; and one of tall or strong-growing ones. In the centre of the first, which need not be more than six feet wide or so, we would not put anything higher than a plant of Acanthus spinosissimus or Arundo donax versicolor in the centre. This Arundo is fine when it is strong enough to make six or seven shoots, and has been protected through the winter by a little pile of cocoa fibre, or something of the sort. It only pushes between two and three feet high, in consequence of its variegation, and therefore is very suitable for the style of bed we are now discussing. Around it we should place either a complete line of some pretty green-leaved plant-like specimens of Rhus glabra laciniata, a little shrub with elegant leaves, or the Achillea with silvery leaves, or both mixed, with the flowers pinched off the Achillea; or say a mixed line of the two Santolinas, viridis and chamæcyparissus, mixed plant for plant; variegated Jacob's Ladder—the flowers and stems of this last to be pinched off as soon as they show themselves, or rather to be nipped out altogether—and with it mixed the fern-like Thalictrum minus. There are dozens of both silvery-leaved and other plants which would edge such an arrangement charmingly—from young plants of the fine Salvia argentea to Alyssum spinosum, or Antennaria tomentosa; if, indeed, it would not be better to have a mixed planting of dwarf and elegant little plants all round. In most of the interspaces of such a bed the judicious cultivator might, if he chose, plant bulbs, etc.—say a sprinkling of Gladioli towards the centre, a few Tulips about the middle distance, and any choice and delicate spring bulbs about the margin. These would in most cases come up and flower ere the foliage plants were vigorous. Where they do not do so, as in the case of the Gladioli, the result is nothing to be alarmed about, inasmuch as the effect of these magnificently-coloured flowers among the rich and elegant foliage will prove simply superb.—The Field.

INCER-POST FOR PURCHASERS PLANTS, SEEDS, ETC.

SELECTIONS OF TRICOLOR GERANIUMS.

SELECTION OF TWELVE GOLD-MARGINED TRI-COLORS,

Averaging 10s. 6d. to 31s. 6d. each.

Lady Cullum (E. G. Henderson).—Richest in shades of gold, yellow, and grass-green, with fine shades of red; a good grower, keeping its colour long, and in due time will be a

Lucy Grieve (E. G. H.) .- Fine for the intensity of the red zone. Sophia Dumaresque (E. G. H.) .- In neatness of habit near fulfilment of the law of properties and regular balance of colours in disk, zone,

and margin; one of the finest of all.

Meteor (Saltmarsh and Son) .- Fine for properties, the leaf being almost circular and quite flat, zone rich in shades of red, margin fine chrome-yellow, very

distinct, and fine constitution.

Queen Victoria (S. Perkins and Son) .- Quite distinct and striking in colours, showing at a distance a blending of blue, scarlet, and gold colour, the disk being very dark or bluish green, the zone being fiery and the margin deep yellow. Will be a superb bedder.

Jetty Lacy (F. and A. Smith).—The form of the leaf good, the zone notable for splendid shades of chestnut, brick-red, and jet-black; makes a brilliant specimen.

Beauty of Surrey (F. and A. S.).—Margin brilliant yellow, zone rich umber with black shades and bars of bright carmine, small bright green disk; distinct and peculiarly rich.

Eclipse (F. and A. Smith).—Leaves rather too large, and too profoundly lobed. but the zone so rich in vermilion-red that we must put up with the irregularities of

form; a splendid variety.

Defiance (F. and A. S.).—Lemon yellow fading to straw colour, the zone carmine and black, with obscure patches of deep brown. There is so much blue in the red of the zone that when a fine plant is in fine condition, there is a purplish hue perceptible, in pleasing contrast to the black, green, and yellow.

Mrs. Dix (Watson).—Very neat in habit, of medium size throughout, and coming near to win thirty in the three first sections of the code. Colours well

balanced, growth good, and will in time be a bedder.

Louisa Smith (F. and A. S.).—Brilliant red, black, and gold colouring, and one of the neatest habited in growth. Worth a place, if only six were selected.

Titania (Carter and Co.).—Remarkable for the brilliant shades of red and the rich deep black of the zone, the margin being a beautiful shade of yellow. If we wanted only six, this must be one of them.

A SELECTION OF SIX SILVER-MARGINED TRICOLORS,

Averaging 10s. 6d. to 31s. 6d. each.

Queen Victoria (F. and A. S.) .- Very neat in growth, margin creamy, sometimes pale sulpliur, zone showing delicate and pleasing shades of red.

Princess of Wales (F. and A. S.) .- Foliage large and abundant, margins creamy white, zones showing shades of black and purplish red; fine.

Impératrice Eugénie (F. and A. S.) .- Showing as much colour as any of its class out; perhaps more colour than any of its class known. A slow grower, but constitution good, and safe for a bedder.

Caroline Longfield (E. G. H.).—A certain surpass of Italia Unità.

Wassand Hall Beauty (E. G. H.) .- Peculiarly adapted for bedding, but as a

pot plant not colour enough; the zone being a good shade of chocolate, with rather washy patches of rose. For elegant work in bedding invaluable.

Light and Shadow (E. G. H.) .- A good zone on a good margin, peculiarly

beautiful when in flower, and therefore well adapted for a specimen.

SELECTION OF CHEAP VARIETIES OF GOLD AND SILVER TRICOLORS, All obtainable at from 1s. to 2s. 6d. each.

Gold.-Mrs. Pollock, Sunset, Yellow Belt, Mrs. Benyon, Golden Defiance, Sunbeam, Socrates.

SILVER.—United Italy, Honeycomb, Lady of Shallot, The Countess, Silver Star, Picturata.

A SELECTION OF FOUR NEW BRONZE ZONALS,

Averaging 7s. 6d. to 10s. 6d. each.

Electra (E. G. H.).—A fine brown zone on a flat leaf; a free flowering variety. Electric (Saltmarsh and Son).-In the way of Luna, with richer colours and heavier zone. Superb out of doors.

Venus (S. and S.).—Much gold and little zone, good habit, and flowering freely;

very attractive and peculiar as a bedder.

Criterion (F. and A. S.).—The most perfect of all this class, the leaf being round and flat, disk and margin sulphur, zone brilliant rufous red.

A SELECTION OF CHEAP VARIETIES OF BRONZE ZONALS.

Luna, Beauty of Oulton, Bronze Queen, Canary Bird (useful only as a bedder), Mrs. Maxwell, Hutton, Zingara, Aureum (a splendid bedder).

NEW PLANTS.



ACSONIA BUCHANANI, Buchanan's Passion Flower (L'Illust. Hort., t. 519) .- Passifloraceæ. A distinct species, which in several points resembles T. ignea. It is a native of Panama, and is named in honour of Mr. Buchanan, of New York, who was the first to cultivate it. The leaves are three to five-lobed, the flowers measure three to four inches

in diameter, they are of a brilliant scarlet colour.

VIOLA PEDATA, Palmate-leaved Viola (L'Illust. Hort., t. 520).—Violaceæ. A beautiful figure of a well-known and extremely pretty species, which would, no doubt, answer equally well for bedding as V. cornuta.

SMILAX LONGIFOLIA VARIEGATA, Variegated long-leaved Sarsaparilla (L'Illust. Hort., t. 521).—Smilaceæ. A beautiful variety of this well-known climber. The

leaves are marked with cloudy lines of creamy variegation.

Dendrobium Bullerianum, Mr. Wentworth Buller's Dendrobe (Bot. Mag., t. 5652).—Orchidaceae. A pretty species, native of Moulmein. It is most nearly allied to *D. crepidatum*, but is abundantly distinguished by the form of the lip, which is broadly ovate, or almost triangular. In size and colouring it approaches nearest to D. Devonianum. The flowers are creamy white, faintly tipped with rose, the lip has a large circular disk of yellow, the margin creamy white.

EPIDENDRUM CREMIDOPHORUM, Sheathed Epidendrum (Bot. Mag., t. 5656).

Orchidaceæ. A remarkable plant, long since discovered by Mr. Skinner, but was only recently flowered at Oulton, where it receives the most ordinary greenhouse treatment. It is a stately robust, terrestrial plant, forming tufts of stout, leafy stems, and dark green leaves six to ten inches long. The flowers are in a nodding raceme, the sepals and petals chocolate brown, with yellow spots, the lip pale rose.

Begonia Boliviensis, Bolivian Begonia (Bot. Mag., t. 5657).—A splendid species, with small, narrow, grass-green leaves, and large, drooping, campanulate

scarlet flowers.

PROSTANTHERA NIVEA, Snow-white Prostanthera (Bot. Mag., t. 5658),-La-

biatæ. A native of rocky hills in New South Wales. A glabrous shrub, three to four feet high, with linear leaves and pretty blush white flowers.

Cestrum elegans, Purple Habrothamnus (Bot. Mag., t. 5659).—Solanaceæ. This fine Mexican shrub is equally to be valued for its brilliant rosy carmine tubular flowers, and its grape-like clusters of deep purple berries. It is one of the best

plants known for a mixed collection.

AGAVE XYLONACANTHA, Woody-thorned Agave (Bot. Mag., t. 5660).—Amaryllideæ. This is a native of Real del Monte, Mexico. It is stemless, the leaves spread all round. They are two or three feet long and three to five inches broad, thick, succulent, but neither keeled, striated, nor ribbed; glaucous green, margin beset with lat-lobed spinous processes. Scape nine to ten feet high, flowers in a dense raceme three to four feet long, clustered in twos and threes, perianth and ovary green, filaments and anthers yellow.

GARDEN GUIDE FOR SEPTEMBER.

Kitchen Garden.—In very early and well-favoured districts, turnips may be sown on land lately cleaned and in good heart, but it is useless to sow in cold climates, or where the land lies low and damp. Collards must be planted out rather thick, they will be of great service when the Brussels sprouts and other late autumn vegetables are over. Those who sowed runners late will now have abundant supplies, which will continue till frost makes an end of them. Keep all plantations clear of weeds, and thin winter spinach where the plants touch, but otherwise leave it rather thick, on the speculation that winter will thin it. Plant out a few rows of lettuce and broccoli under a warm wall.

Flower Garden.—Evergreens of all kinds may now be planted, and if the work is well done, the plants will scarcely feel the check, as they will make plenty of new roots before winter. Plant hardy herbaceous plants of all kinds, look after ripe seeds of choice things in good time, and secure stock of bedding plants, if the

quantities required for next season are not yet made.

Fruit Garden.—In gathering fruit it should be remembered that fruit full ripe does not keep long. Yet it must not be gathered until the ripening process has commenced, or it will be inferior in flavour, and equally quick in perishing. This is a good time to plant strawberries. Bush fruit required to hang late should be

netted, to protect it from the birds.

Greenhouse and Stove.—Cinerarias, primulas, and many other subjects now coming on for winter flowers, will require to be shifted on. It is the worst possible practice to keep such things a long time starving in small pots. Get all the houses and pits cleaned, glazed, painted, or whatever else requires to be done to make them right for the winter. Lessen the supplies of water to all hard-wooded plants that have been turned out of doors, but take care that none of them suffer.

*** Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons, the "Garden Guide" will be on a contracted scale this year.

NEWS OF THE MONTH.

The Exhibitions of the Past Month have been quite equal to the average, and in many instances provincial societies have manifested more than ordinary life and spirit in the conduct of their exhibitions. At Peterborough we were gratified to see stove and greenhouse plants, roses, pelargoniums, and ferns in great plenty and variety; and a spirited competition by ladies in a class for dinner-table decorations. Dr. Porter and the Rev. G. W. Thomas were particularly energetic, and they contributed beautiful groups of achimenes, gloxinias, balsams, orchardhouse trees and ferns. The judges, Messrs. Pearson, F. Smith, and S. Hibberd, selected from amongst a great number of bouquets one contributed by Mrs.

Macaulay, and pronounced the best they had met with in all their experience. It consisted only of white and pink geraniums, with a few bits of blue lobelia, with a margin of maidenhair fern, the outline being slightly convex. Mrs. Macaulay was awarded for this a five guinea cup. Mrs. Porter took the most honcurable place in the competition for the best dinner-table decoration, with a plateau richly dressed with fruit, above which rose a silver nautilus shell filled with flowers. Messrs. F. and A. Smith, of Dulwich, exhibited their magnificent collection of tricolor-leaved pelargoniums. At TAUNTON, the exhibition proved to be the best of any that have taken place in the West of England; no less than five great tents being fully occupied. Mr. J. B. Saunders, a spirited amateur of the district, carried off a host of prizes with his superb examples of fine-foliaged plants, ferns, and flowering plants. There was a great competition by eminent trade growers, and the best productions of Messrs. B. and S. Williams, Lucombe, Pince and Co, R. Veitch, Nelson, Drummond, and Keynes, were liberally brought forward. Dahlias, pelargoniums, hollyhocks, and verbenas were shown in splendid condition and variety. The judges, Messrs. Turner, Keynes, and S. Hibberd, awarded certificates to several meritorious novelties, not the least important amongst them being the new grape, Mrs. Pince's Muscat, a black grape, with true Muscat flavour, which possesses remarkable keeping properties, and may be allowed to hang on the vines till April or even The vine is remarkably fruitful, and as the fruit can be perfectly ripened in a cool house, and left on the vine till wanted, this variety will, in many instances, render early forcing unnecessary.

A TESTIMONIAL TO MR. ROBERT THOMPSON, who, for forty years past, has superintended the Horticultural Society's Garden at Chiswick, has been proposed by the Council, who, we understand, intend to supplement it with a retiring pension, Mr. Thompson having resolved to rest from his labours. It is to be hoped that the patrons and promoters of horticulture will support this movement generously, both in recognition of Mr. Thompson's eminent services to horticulture and meteorology, and to "gladden and solace," by a substantial money gift, "the remaining years of his life." Those of our readers who wish to contribute are desired to forward their

subscriptions to Thomas Moore, Esq., Botanic Garden, Chelsea.

INTERNATIONAL EXHIBITIONS of horticultural productions appear to be still in high favour. There is to be a grand exhibition of the kind at Ghent in the spring of 1868, and another at St. Petersburg in May, 1869. It is anticipated that the Americans will make an attempt at a great gathering in 1870, but the enormous distance will of necessity limit the number and variety of contributions from the Old World.

A TESTIMONIAL TO MR. BRUCE FINDLAY, the able curator of the Manchester Botanic Gardens, is in course of premotion by the Council, in recognition of Mr. Findlay's services in the improvement of the garden, and especially of his labours

in connection with the recent great exhibition at Manchester.

CLASSIFICATION OF ZONAL AND VARIEGATED PELARGONIUMS.—The repeated discussions and the occasional unpleasant and injurious disputes as to the proper classification of the plants commonly known as "geraniums," render it highly desirable that cultivators should agree to a system and avoid all hair-splitting in the interpretation of schedules. To make an end of all the difficulties that beset the subject, Mr. Hibberd has proposed in the "Gardener's Magazine" (July 27, 1867) a scheme for their arrangement in nine classes. In this classification the term "variegated" is limited to the white and creamy-edged varieties, which are destitute of coloured zones, such as Alma, Mrs. Lennox, Flower of the Day, etc. The terms "bicolor" and "tricolor," are abolished, because many bicolors are so weak in their zone colours that the question will always arise, and in respect of the tricolors, they all exhibit more than three colours, so that in truth the term has never been appropriate. The following are the classes proposed in the paper referred to :-1, Green-leaved, example Tom Thumb. 2, Zonal-leaved, example Hibberd's Pet. 3, Nosegays, example Stella. 4, Variegated-leaved, example Flower of the Day. 5, Golden-leaved, example Golden Chain. 6, Bronze-zonals, example Luna. 7, Gold-zonals, example Mrs. Pollock. 8, Silver-zonals, example United Italy. 9, Double-flowered, example Gloire de Nancy. We might reduce these to seven classes by restricting the classification to the leaves alone; the nosegays and double flowering kinds would then take their places in the green and zonal classes, and we should not regret if green and zonal were compounded in one class, which would reduce

the number to six. Of course, it is not expected that my classification will serve every purpose required of it, but the grand object is to establish a system available for exhibition purposes, and which will always admit of a simple and unvarying interpretation.

GATHERING A FERN.-Miss Jane Myers, a young lady, fell over the rocks at Craighall, Scotland, and died at Blairgowrie, three days after, of the injuries she sustained. The most serious wound was on her right leg, the ankle-bone of which was dislocated and protruded several inches through the flesh; but her whole system had received a shock from which recovery was impossible. The lady stated before her death that, having wandered up to the cliff, intending to proceed to the waterside, and being fond of botanical specimens, she had stoop d to gather a fern, when some loose earth gave way, and she was precipitated through a bush into the chasm below. Something had caught her, however, and borne her up for a time, but ultimately that, too, gave way, and allowed her to fall to the bank. She had only a dim recollection of being sorely tormented with flies and other insects, swarms of which had gathered round her as she lay for five or six hours in that dreadful place; and in this plight she was discovered by some visitors. A line hung over the edge of the crag to the bank where the lady fell was found to measure 170 ft., the remaining distance to the water making the entire height of the precipice almost 200 feet. The melancholy occurrence has created a gloomy sensation in Blairgowrie and neighbourhood.

TO CORRESPONDENTS.

BERBERRIES .- J. J. Littlebourne .- For the kinds you are in search of, try Messrs. Paul and Son, Cheshunt, Mr. Rivers, Sawbridgeworth, Messrs. Lane and Son, Berkhampstead, and Mr. Standish, Ascot. Your kind suggestion is fully appreciated. We are preparing this number of FLORAL WORLD on the summit of a mountain far away from home, and have not time to send you a private reply as we would wish. Cur engagements for the present season are already so numerous that we dare not add to them a single hour's work more.

HEMONY.—A. L. G..—We remember a discussion on this subject, in which we took part, some years ago in the pages of "Notes and Queries." Being away from home, we cannot refer to it, but next month will endeavour to answer your question. E. C. J.—Next month.

Forensis. - All the plants named in your list can be obtained of Messrs. E. G.

Henderson and Son, Wellington Road, St. John's Wood.

PLANTING ON A. BANK.—Terrace may grow almost anything on the bank if ledges are cut. The best evergreens for such a position are hollies, phillyreas, cotoneasters, and lauristinus. The least suitable are aucubas and berberries, and of course common laurel is quite unfit. Be content with small stubby plants to begin with, and plant them this month or next.

Allanthi-culture.—C. B. B.—The best experiment we have seen has not proved commercially successful, though it has been in operation five years, and the most careful economy has been practised. As an amusement silk growing is all very well, but in this country it must not be thought of as a profitable industry.

BOOKS .- Casar .- Deakin's "Florigraphia Britannica" will afford you the best possible key to discovering the names of British plants, as besides the descriptions, it contains good figures. The best small book of the sort is Withering's "British Botany," by Macgillivray. The "Rose Book" will afford ample information on the formation of a rosarium, and on every method of multiplying roses.

PLANTS. - J. Colson. - 1, is like Siphocampylos bicolor, but from such a mite it is impossible to determine definitely; 2, one of the Echeverias; 3, Rhyncospermum

Jasminiflorum.

FERNS .- M. Fenn .- Yours are injured by thrip. Maintain in future a more humid atmosphere in the house. Do not use any preparation to destroy this pest,

but grow your plants liberally, and if it does not quickly disappear, fumigate the house with tobacco smoke.—E. G.—I, Polystichum aculeatum; 2. Lastrea spinulosa.

Charlock.—Simson.—There is, of course, no other way to rid your ground of "that noxious weed charlock," but hoeing and hand weeding. But is it a noxious weed? There are few who know its value, for it is one of the best sheep-feeding herbs the land produces. Within a week past we made an experiment by turning fifty sheep into a three-acre field of Swede turnips, which was like a flower-garden with charlock. The sheep ate the charlock and did not touch the turnips. they had had two days of this fun, we turned them into another field to weed that. By this system the sheep do all the weeding, and grow fat by the operation. They

must, of course, be turned out as soon as their weeding is finished.

STANDARD WALLFLOWERS .- R. S. H .- Wallflowers are generally described as biennials, but they are strictly perennials, and may be so treated as to become huge bushes of a most ornamental character when in bloom. We have seen them trained to walls, and reaching a height of three to four feet, and blooming every year most profusely. None but the best of the doubles are, however, worth treating as perennials, and a very useful form in which to grow these is as standards. We have been accustomed for many years past to have standards of a tall-growing double yellow variety, and of another which has richly-iron-stained blossoms on a creamy-white ground. To grow these, cuttings should be made in the summer, and when rooted they should be potted in light rich soil, with plenty of drainage, and grown on fast. All the side-shoots should be pinched in, and by degrees removed, a few at a time, beginning at the bottom, and the leading shoot must be stopped when the stem is of the height required. Bloom should not be cared for for a couple of years; the object should be to get first a stout stem and a good head, then, when the head is formed, all that is necessary to promote a fine bloom, is to pinch in the shoots once or twice in the early part of the growing season, and then leave them to set their flower-buds. After the trees have their proper shape, no shoots should be allowed on the stem. But if the side-growths are removed too quickly, the stem will be weak, and want the support of a stake, whereas, if the side-shoots are only pinched in at first, and removed only one or two at a time, progressing from the bottom upwards, the stem will swell so as to support the head, and render a stake unnecessary. As a matter of course, they will require to be repotted every year, and the best time will be when the growth is finished in the autumn. Then shake them out, remove some of the soil from the roots, and repot with fresh compost, in the same pots if possible, but in any case in pots only one size larger. They may be grown to such a size in 48 or 32 pots that the pot will not afford a suthcient base to stand sealer and increased size of pots will be required without to enable them to stand safely, and increased size of pots will be required rather to enable them to stand on their feet than for need of more root-room. These standards should be kept all winter in a cool greenhouse or pit; if left out-doors, a hard frost may result in splitting the stem from top to bottom; and, in fact, they are not adapted for outdoor use, except in very sheltered places. But for the conservatory, and to carry indoors for the window or drawing-room table, they are invaluable when the heads are full of fine blooms, which emit a most delightful fragrance.

Double Clitoria ternatea .- B. B. This is an interesting plant, and the most beautiful in the whole of the family to which it belongs. Among papilionaceous plants, double-flowering varieties are scarce, but whenever they are obtained they are highly valued for their massiveness and imposing appearance. There is a story told of a nobleman who paid little attention to horticulture having the beauty of the double furze pointed out to him, when he immediately ordered fifty pound's worth of it. In the ease of the double Ciitoria we have an interesting example of the apparent extinction of the papilionaceous form of the flower by the process of "doubling"—the keel, banner, and other parts of the normal blossom being lost in the process of multiplication, so that the flower has much more the semblance of a rose than a pea. The flowers are of a rich purplish-lavender colour. It will form a fine ornament for a conservatory trellis, or to grow on a wire balloon; and as it is of perennial habit, seeds sown now will produce strong plants for flowering next year, or, if liberally treated, a moderate bloom may be obtained late in the present season. It is to be regretted that so little attention is now paid to the culture of conservatory climbers, and especially those of the Leguminous class, of which we

have many that are unsurpassed for grace and beauty.

THE FLORAL WORLD

AND

GARDEN GUIDE.

OCTOBER, 1867.

ENGLISH FRUIT-GROWING.

RUIT culture in England as compared with fruit culture in France has been the subject of a somewhat prolix,

but nevertheless interesting, discussion in the newspapers for some time past. The discussion arose principally out of a panegyric by one of our ablest horticultural writers of the French mode of training cordon trees. It was thence argued that English cultivators should take cordons in hand, and look for their reward in an increased production and a higher quality of home-grown fruit. It is quite true, we might even say delightfully true, that French amateurs bestow much time and care upon their fruit-trees, and excel in their various modes of training. As to the cordons, we see fruit-trees of all kinds subjected to this mode of training, though it is more particularly adapted for the pear and the peach, when trained on walls. The essential feature of the cordon system is that the trees consist of a certain number of long rods, crowded with fruit spurs, but quite destitute of the side branches and ramifications which every tree will naturally form when left to grow in its own way. The business of the cultivator is to promote the growth of the fundamental rods or branches in length, and to suppress all side-shoots, and, generally speaking, keep down the growth of lateral wood. When well made, a cordon tree is like a series of knotted ropes, or if it is a simple cordon, it is like one long rope, with fruit and leaves scattered its whole length, a curious and an interesting object for the pride and comfort of the

It will be observed that the principal manipulation in cordon training consists in pinching back the wood shoots that are sure to appear in plenty during April, May, and June. The constant pinching of these tends in time to their conversion into fruit spurs, and if they are well matured by a dry warm autumn they bear fruit abundantly. But one objection to the adoption of the system in this country is, that we cannot depend upon having the late growths perfectly matured, whereas the Frenchman has no doubt about it at all. It is rarely that his better climate fails to give the finishing

cultivator.

touch to his delicate operations in fruit-tree training. It may appear at first thought to some of our readers that this objection is not well founded, for they may say, if the English climate ripens the wood of one kind of tree, will it not ripen another kind, and that irrespective of the mode of training? But the case turns upon this consideration, that cordon trees are of necessity much more subjected to disbudding, green pruning, and pinching, than trees in any other form; that therefore they form their final growths later in the season than trees less interfered with, and therefore require a longer, brighter, drier autumn for the maturation of the spurs and fruit shoots which are allowed by the cultivator to remain. It follows that cordontraining in this country is most likely to succeed in the southern counties, and that in any district it is much better adapted to trees on good walls than trees in the open quarters. We have no wish to discourage the adoption of cordon trees in English gardens, but it appears to be our duty, now that their advantages have been explained, with persuasive eloquence, to give our readers a few words of caution as to the probable difficulties attending the cordon system in this somewhat uncertain clime.

Nor should we forget another caution, which we feel assured is not of secondary importance with persons who value time and have to pay for labour. The cordon system entails an immensity of trouble. A week's neglect of the trees at the time when they are in vigorous growth will result in completely altering their figure, and necessitate much cruel use of the knife to subdue their growth of useless wood. The cultivator is at war with Nature at every step, and if he sleeps, or forgets his work, Nature triumphs and laughs at him. Those who enjoy much leisure, and really need more employment in the garden, may not fear the cultivation of cordon trees, but irritable people, who soon grow weary of "niggling," had best not begin, for it is pretty certain they will soon repent it. As to the practical part of the matter, cordon-training is easy enough; we have but to lay in young shoots, and then suppress all side growths, save and except such as are calculated to become bearers of fruit, as, for

example, short spurs in the case of pears, and short wiry branches

in the case of peaches.

While we have little to say in favour of the extension of cordon practice in English gardens, we gladly testify that the production of English-grown fruit has been much improved since pyramid and bush trees have increased in public favour. There are few now who plant standard trees in the certainty of having to wait the fifth part of a century to see their fruit, and with the probability of neter seeing it at all. A few years suffice in these times to bridge over the space of time between planting the tree and gathering the fruit, and this is one of the best results of grafting near the root, and much more the result of that practice than grafting on starving stocks. We meet with many collections of bush and pyramid fruit-trees on quince and doucin stocks, and we cannot pronounce those stocks to be delusions. But we meet with many still finer collections on free stocks, and we begin to doubt if anything substantial has been gained by the use of dwarfing stocks, for the pear and the crab

soon become fruitful if the grafts are put on near the roots, and the trees are periodically lifted until they acquire a fruitful condition. At all events, we can conscientiously say that bush and pyramid trees occasion the least amount of labour, and are likely to give the largest return in good fruit for the space of ground they occupy, of all the various forms of fruit-trees. And as to the stocks, it is certain that such as are called "free," and on which the trees grow with vigour, though less precocious than the dwarfing stocks, may nevertheless be rendered fruitful at an early period by the practice of biennial lifting, which not only checks excessive vigour, but favours that abundant production of surface roots on which the production of fruit so much depends.

S. H.

THE VILLA KITCHEN-GARDEN.—No. IV.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.

N this and succeeding papers I propose to deal with the cultivation of the occupants of the kitchen-garden in alphabetical order. I shall therefore commence with the

ARTICHOKE. - Of these there are two kinds, the Globe and Jerusalem. I shall dwell on the former first: and in the first place I may remind the reader it is not perfectly hardy; it should therefore have some amount of protection round the hearts of the plants during winter. The best covering I have ever found is to gather up the leaves of the plants and then to cover up the whole of the plant with ten to twelve inches of coal-ashes. Some cultivators place round them the same depth of soil dug out between the plants, and some use long litter from the stable, but I prefer the coal-ashes above either. These plants are readily increased by taking off the offsets from established plants; or one old plant may be taken up and divided. This is best done about the middle of April, the ground should be first deeply dug and heavily manured where they are to be planted. If this is done in the autumn previous, so much the better, as then the frost and rain of winter, with an occasional stirring of the surface, will render the soil in a sweet, friable condition. The young plants should be placed six feet apart each way, and at the time of planting some fine rich soil should be put round the roots to induce them to root freely. If cold winds prevail, place over each plant a sea-kale pot, or some other such contrivance, just to screen them from the wind. It will be well to remember that they are gross feeders, and that the more liberal the culture, the more early will be the produce. They will require water during dry weather for at least three months after planting, and after the first month manure water may be given at every alternate watering. With such treatment as above advised, if the plants are in the

first instance strong, it is possible that they may put up one or two heads each late in the summer, but more generally they do not do so until the following summer. When Globe artichokes are well grown, they are striking objects, but the majority of plants which we see in small gardens are so stunted and starved, that people have not the opportunity of judging of their merits as ornamental plants.

The Jerusalem Artichoke is a well-known subject, not for its merits as a vegetable in particular, but for its usefulness as a screen to shut out any unsightly object, which it will do effectually if planted in a good soil. They are not particular as to soil, but they produce the largest roots when grown in a light free loam, and somewhat shaded by a wall or fence. They should be planted in lines two feet apart, and eighteen inches between the plants, using

moderate sized roots for planting.

ASPARAGUS.—This should be planted in beds five feet wide, four rows at twelve inches apart in the bed, with a two-feet alley between each two beds. This requires liberal culture; therefore, if the natural soil of the garden is too stiff and cold, or too sandy, it must be removed, and some more brought to replace it. The asparagus delights in a free open loam, with a well-drained under surface, and this as far as possible should be obtained. It will also do exceedingly well in any moderately light soil, providing there is a good depth and it is annually manured. In a cold clay soil I have used old mortar, containing a portion of broken bricks and coarse coal-ashes, also coarse road-sand and small chalk, with good effect. All these ingredients assist to make a clay soil more open and porous, and the roots of asparagus delight to ramify amongst such matter. Besides the above, a heavy dressing of half rotten manure will be required at the time of making the beds. The beds should be dug out, as above stated, to the width of five feet, and twelve inches deep, the bottom soil should then be deeply stirred up, and upon this a thick layer of dung, and any of the above-named ingredients that the soil may require. On this place six inches of earth, and then stir the whole up together; give another layer of well-rotted dung, and the remainder of the soil on the top of that. The bed is now ready for planting or sowing. For the ultimate success of the beds I prefer to sow seed in drills a foot apart, and thin out to the same distance, as seedling plants work more evenly in the soil, and there do not occur those gaps in the beds as are almost sure to follow when they are planted. But this necessitates that the cultivator should wait until the fourth season after planting before he begins cutting any grass. It is not so when two-year-old plants are used, as then the time is reduced by one-half. Presuming that the beds are to be planted, and that they have been prepared early in March. I would secure the plants early in April, and then rake off about two inches of the top soil of the beds, and spread out evenly and regularly the plants upon the surface; the roots must then be covered over with some nice fine earth two inches deep. The sides of the beds should be neatly made up, and the alleys manured and trenched up for a crop of spring cauliflower. This operation being completed, I must now warn the cultivator against growing upon the beds themselves any other crop. Many make a practice of sowing lettuce and such like subjects, and then boast of their superior quality to those they grow in the open quarters; but they forget that these huge lettuce, etc., have been obtained at the expense and risk of killing the asparagus. If any of my readers require large and superior lettuce, let me remind them that they are to be grown equally as well in the open quarters, if they would take the same care in preparing the ground for them as they did for the asparagus. More than half of the failures of fresh-planted asparagus beds are to be attributed to the practice of over-cropping and too early planting. Newly-planted beds of asparagus should be well watered at the time of planting if the soil is dry, and this should be continued whenever dry weather occurs, up till the end of July. My own beds I always mulch with short grass from the lawn about the middle of May, and I find this to help the plants amazingly. Keep the beds well weeded through the summer, and do not cut down the young grass until the middle of October. At this time give another coat of manure on the surface of the beds, and then cover up this from the alleys between with about six inches of fresh soil, two inches deep the first season, and six the next. These are the greatest depths they should be buried the first and second season respectively. Some growers plant eight to ten inches deep the first year, and then wonder why they do not come up. In the spring of the succeeding year gently fork up the beds, and as summer advances, give them manure-water occasionally, alternating this with a sprinkle of salt about every three weeks. Keep the beds free from weeds, and if the soil is light, tread it firmly round the plants when they have reached the height of two feet. In the autumn cut down and manure the same as advised for the previous year, but this time throw up the full amount of soil from the alleys, as the plants will have now sufficient strength to penetrate it. I like a depth of ten inches of soil when the plants are established. The following spring they will produce grass fit for table, but they ought not to be cut too hard the first year. I should consider 200 grass from a bed five feet wide, and fifty feet long, quite as much as ought to be taken from it the first season. When cutting for table, all the small weakly grass should also be cut, up to the time that cutting is discontinued, and this ought not to be later than the 20th of June. All the above remarks of the management of planted beds are also applicable to the management of those sown with seed. Some care is required in cutting asparagus for use, otherwise many rising heads just under the surface are injured. It is best to search out those it is intended to cut a little below the surface. A properly made asparagus-knife is the best instrument for the purpose.

THE AURICULA.

BY JOHN WALSH.

CHAPTER IV .- WINTERING THE PLANTS IN FRAMES.



ARIOUS people have various ways, and I find that there are many little differences of management amongst auricula growers in respect of the treatment of the plants during winter. First, however, let me speak of the frames. I am familiar with all the best collections of auriculas in

the country, and I can safely say that common garden-frames are employed in this cultivation almost universally, specially prepared frames being most rarely met with. The far-famed Richard Headly, Esq., of Stapleford, keeps the whole of his plants in common frames, on beds of coal-ashes, close beside a fence of quick. The celebrated James Butcher, of Camberwell, uses common frames, fitted with deal shelves, on which the pots stand all the winter: but in summer the shelves are taken out and the pots are stood on the bed of earth within the frame, and at the same time bars of wood are nailed across back and front, on which the lights rest, to allow them to be kept above the plants constantly to screen them from "blacks," while at the same time there is an aperture about two inches deep, to keep up a constant circulation of air. Mr. Charles Turner, of Slough, the best cultivator in the country, and the largest trader of stock, keeps his plants in frames made on purpose. They are of the usual width and length, but stand high up from the ground, say about three feet at back, and two feet in front, and they are filled to within nine inches or so of the glass, with a solid bed of clean coal-ashes. On this bed the pots stand very near the glass. afford a constant circulation of air a narrow panel of about four inches in width is cut out of the front of the frame, and therefore if the lights are drawn down an inch or two, there is a regular current of air from front to back, while the plants are still sheltered from rain and dust.

It will be understood from these three examples that the possessor of a few choice auriculas need not put himself to any serious trouble or outlay in providing for their preservation during winter. Find as many frames as needful; rig them up on beds of coal-ashes one or two feet (or more) above the surface of the soil, to insure dryness, let the situation be east, west, or north, but not south on any account, and if possible secure shelter at some little distance on the northern side, to screen the frames from cutting winds. Every precaution known against vermin must be adopted, the place and its surroundings must be clean, and in the way of preparation that is all that is needed.

At this time of year, auriculas are usually infested with greenfly, and the treatment for which should consist of *mechanical* means only. I strongly object to smoke, and to all nostrums, as injurious to the plants. Suppose I find my plants now infested with fly, I

take a seat beside the frame with a rather large and very soft camel'shair pencil in my hand, and a little air in my chest. To be sure, there's always air in my chest, but now I want it as a mechanical agent to cleanse the plants, and so I draw myself up, and inflate my lungs, as I hold up a plant and search through it with my eye to determine if it is lousy. With a good "puff" from my own pair of bellows—the pair Nature presented me on my birth-day—I send them flying against their will, and then I ply the pencil to remove any that still stick fast after such a bronchial tornado. It makes an agreeable hour's work to blow and brush a lot of auriculas in this way, and gives one a grand appetite for whatever meal is to follow. I have no doubt whatever, if we could keep some one in whom there were signs of consumption so employed, with a little walking for a change of exercise, the whole constitution would be changed for the better, and the disease nipped in the bud, or we may say blown away. The next best method to puffing the fly away with the breath is to employ a common bellows, but the human bellows is the best.

It must always be borne in mind that the auricula is one of the hardiest plants in cultivation. It will not be likely to suffer by frost in winter, but damp is death to it. From this time till spring returns, the cultivator must be extremely cautious in respect of giving water, for if slopped about under and over the pots, mischief will result; if poured carelessly over the leaves, canker will appear. On the other hand, they must never go quite dry, for that is nearly as bad as being constantly wet. Hit the happy medium, and above all things treat them as hardy plants, for which protection from snow, rain, and mist, is of much more importance than protection from mild frost, or from a genial atmosphere, at any time. From now till frost comes, keep the lights off, unless you live in a very smoky atmosphere, in which case the lights must be kept always over them, but with a current of air through; but put on the lights when there is any expectation of snow or heavy rain, and in respect of frost, shield them from it as perfectly as possible without resorting to any coddling process. I am warned by the Editor that this series on the auricula must be completed within the year, therefore I will endeavour in two more papers to say all I have to say about it, and then take up some other favourite. My principal object in this paper has been to show that those who have entered upon auricula growing through the persuasions of the FLORAL WORLD, need not go to the expense of having frames made expressly for keeping their plants during the winter. But should any of our readers wish to have the most proper kind of auricula-frames ever seen or heard of, they may find a model for their construction at page 300 of Hibberd's "Garden Favourites."

A GLANCE AT THE ROSERY.

BY W. D. PRIOR, OF CLAPTON.

HE rose season is virtually over for this year. Morning frosts and chilly nights will speedily nip up the lingering blossoms, and clothe the foliage with the leprous foliage of mildew, blighting our favourites, so that they are no longer beautiful, and suggesting the neces-

sity for their falling into a state of rest, the better to resist the inclemencies of winter. It is by no means a bad plan, where plants are found in the autumn in too succulent and sappy a state of growth, to give the soil about their roots a gentle heave up with a garden fork, loosening without damaging the fibres, and by means of such a delicate check to prevent further untimely development. Let rosarians see to this betimes. The havoc caused by the last winter was owing not so much to its severity, as to the condition in which it found the plants, full of sap, and unripened by the autumnal weather. Such a condition of plants invites destruction, unless efficient protection can be given against "killing frosts" and "unkind winds."

A good deal of skill and thoughtful consideration are requisite to the proper arrangement and formation of a rosery, and there are few such places the capabilities of which are developed to the full extent. It is not sufficient for the owners of a beautiful space, a suitable locality, and a full purse, to order dozens of fine plants of different varieties, sizes, and kinds, and stick them in anywhere and anyhow, like dibbling scarlet beans, but consideration should be given to appropriate and elegant combinations. Excursions should be made as wide as possible from the beaten tracks, provided such innovations are conceived in correct taste. The man who invents a meritorious novelty, invents a new pleasure, and suggests further improvements to those engaged in similar pursuits, deserves the approbation of his fellows, whatever the line may be. This should be borne in

mind in every novel experiment, even in the garden.

In every portion of the floral distribution of a garden, two primary objects are required—we want as many blooms of any specific flower as we can obtain, and we want them displayed in the manner most gratifying to the eye, which will be in the most appropriate situations, amidst the most becoming surroundings. It is surprising what a wide range of adaptability for these purposes exists in almost every kind of flower, especially in the rose, respecting which let us glance at a few phases of its application. We may dismiss it at once in its promiscuous situation in the borders as an individual ornament, to consider it in its proper and distinctive location in the rosery, where its combinations should be the result of the most consummate thought, and where its beauties should be developed to the greatest advantage. Wherever space will allow its construction, there should be a rosery, and it should be isolated from the other parts of a garden sufficiently to form a prominent feature in itself. Every rosery should be approached through some

description of archway or avenue, upon entering which the whole coup d'œil of the fairy and fragrant region should present itself to the view. It should be surrounded by shrubs and trees beyond, suggesting the idea of unexplored and still more enchanting glades. Nor is a fountain falling into a lily-bordered basin an inappropriate centre for a rosery; nor should trellised arbours, overrun with fragrant blooms, be wanting to the place, nor nestling temple, if not too pretentious. Plenty of well-kept turf, too, should abound on every side. The character of the rosery also may be very diverse—rural and luxuriant, Italian and precise; but whatever arrangement may be carried out, to speak artistically, it must always be in good

keeping. Beds for the cultivation of roses may be of numerous forms, either sunk in panels amidst grass, or raised above the surrounding level, in framework of burrs or clinkers from the brickfield, surfaced with rock-plants and mosses, the variegated periwinkle, and other trailers; or they may be constructed at the summit of sloping banks of turf. In this situation they may be pegged down, or trained short and thick against a low wire at the back, forming a beautiful separating line or hedge where required. Slightly-raised beds are advantageously employed for the purpose of pegging down. Rampant and rambling kinds, which throw out long shoots, are the best fitted for this method of training, which has the additional merit of increasing the cultivator's stock of plants by a species of layering process, almost all the branches rooting where pegged into the soil. Pincushion beds are usually too stiff and formal to satisfy the artistic eye; but there are some situations in which they may be tolerated, if not approved. In such, however, every art should be used to break up their mop-stick appearance, by training them umbrella fashion, even to the ground, converting them into fairy fountains of flowers, and some pretty dwarf edging, such as Cerastium tomentosum, should define and finish the outline of the bed. Talking of fountains of flowers, why should we not attempt a rosy cataract, training the plants downwards, over walls or banks, where, for instance, the earth on one side is high and the other low? There are abundant situations where such a mode of dealing with our favourites is quite practicable, and where the effect would be as delightful as novel.

To make a rose pyramid the soil should be specially prepared of rich feeding power, capable of sustaining the inevitable exhaustion of its nutritious qualities by the number of plants requisite to produce an effect. In this style of growing the rose, two feet of surface room is the most that ought to be allowed to each plant, so that the combined heads may produce an abundant mass of foliage gaily interspersed with blooms. If a rose pyramid be desired, some extra vigorous variety should be selected, such as Jaune Desprez or Gloire de Dijon, budded upon a strong, straight stem, six or seven feet high, well supplied with robust shoots on all sides from the work; this is to form the centre of the structure. From this the plants are to decrease in height row by row, contrasting colour with judgment, and carefully adjusting habit to secure uniformity of

growth. Upright growing kinds, however beautiful and perfect, are not suited to this manner of cultivation. Crescents and banks of

graduated roses require to be formed on similar principles.

There are a goodly number of fine roses excellently adapted to decorate vases, or to be utilized in the "plunging system," or furnishing by plants in pots, so deservedly popular now-a-days. If any connoisseur of floral effects desires to see the extent to which this valuable method of garden ornamentation can be carried, he should seek the assistance of some modern Asmodeus, and inspect a certain portion of the domain of our able Editor, where changes take place in the hours of darkness, or at least when ordinary mortals are asleep, rivalling in magical effects, on a small scale, the transformations recorded in the Arabian Nights. For the above application such varieties only are adapted as possess a bushy, close-growing habit, joined to that of being constantly and profusely in bloom. There are no more unsightly objects than pot roses usually are at exhibitions, tied out in unnatural directions to huge stakes, rendering that which should be graceful and natural constrained and repulsive, like the huge cuirass-like fabrics which enclosed the fair forms of our ancestresses in the Tudor times. It may be also laid down as a canon in the treatment of climbing or rambling roses, that all which are not perpetuals should have continuous bloomers plentifully dispersed at their base, to fill up the blank period when they are out of flower, and distract attention from the unlovely spectacle of dry leaves, and spectral branches, and backgrounds uncovered, which were designed to be concealed.

A FEW GOOD ROSES FOR PEGGING DOWN.

Common China:—Fabvier, Cramoisie Superieure, Mrs. Bosanquet.

Bourbons:—Armosa, Madame Desprez, Bouquet de Flore,

Queen, Souvenir de la Malmaison.

Hybrid Perpetuals:—Admiral Nelson, Baronne Prevost, Beauty of Waltham, General Jacqueminot, Jean Goujon, Jules Margottin, Le Rhone, La Brillante, Duchesse de Morny, Madame de Cambaceres, Mrs. Rivers, Triomphe des Beaux Arts.

Noisette Perpetuals: - Louise Darzins, Lady Emily Peel, Madame

Alfred de Rougement, Pavillon de Pregny.

Teas:—Bougere, Gloire de Dijon, Devoniensis, Madame Villermoz, Narcisse, Madame Falcot, Sombreuil, Souvenir d'un Ami.

Noisette:—Cloth of Gold, Aimée Vibert, Marechal Niel, Jean d'Arc, Jaune Desprez.

A FEW EXCELLENT CLIMBERS.

Ruga, Amadis, Felicité Perpetué, Blairii No. 2 (not very high), Admiral Nelson, Glory of Waltham, Russelliana, Triomphe des Beaux Arts (where the climate will suit), Gloire de Dijon, Maria Leonida, Aimeé Vibert scandens, Climbing Devoniensis, Ophirie, La Biche, Lamarque, Jaune Desprez, Solfaterre, Homere, Bougere. Almost any of the strong-growing teas, where the climate will admit of their safety in the winter, or where protection can be conveniently applied.

SOME VARIETIES FOR PYRAMIDS.

Gloire de Dijon, Jaune Desprez, Ophirie, as centres; Achille Gonod, Jules Margottin, Senateur Vaisse, General Jacqueminot, John Hopper (rather too upright), Charles Lefebvre, Madame Charles Wood, La Duchesse de Morny, Comte de Nanteuil, Baronne Prevost, Madame Knorr, Beauty of Waltham, Madame Victor Verdier, F. Lacharme, Marguerite de St. Amand. It will be observed the absence of white and its various tints. There is absolutely none of first-rate merit worth associating with the above, except those of upright habit, and consequently unsuited for the purpose. Madame A. de Rougemont is perhaps the best.

For those who wish selections of roses for other purposes than these, are there not the "Rose Book," the pages of this serial, and the "Gardener's Magazine," all of which are reliable, and not, as is too frequently the case, a mere "hotch-potch" from the nurserymen's catalogues, by writers who are paper florists, trading upon the experience and brains of others; and will there not shortly be the "Garden Oracle," the which, if any professed lover of flowers buy not, he is an impostor, deserving stones in his Christmas pudding,

and boiled slugs in his vegetables?

THE COLOURS OF TREES IN AUTUMN.

RAMBLE through a wood, or even a glance over a few well-planted gardens, will teach the amateur gardener a lesson now of the value of such trees and shrubs as at this season acquire distinctive colours. As deciduous trees will throw their leaves off, the more we can get

out of them in the way of colour the better; and there happen to be several subjects among our hardiest and cheapest trees and shrubs that die gloriously, like the dolphin, and justify that sublime passage in Tennyson's "In Memoriam," where he speaks of

"—— Autumn laying here and there A fiery finger on the leaves."

Though we have an immense variety of trees and shrubs with variegated leaves, and many with foliage uniformly red or purple, many of these are now unattractive, while many that have worn a sober garb since they first came into leaf are now lighted with rich amber, golden, and crimson hues, and have a richer effect because of the subdued light, the frequent cloudiness of the atmosphere, and the general scarcity of flowers. It is very important for rendering

a garden attractive at all seasons that there should be a good sprinkling in the plantations of trees that give to the autumn landscape broad dashes of colour, so that though the rain may put a stop to walking out, the view from the windows will be still cheerful. There are, indeed, few effects in rural colouring to equal such masses of orange and russet as we occasionally see in well-wooded countries, where against a dark background of fir, with the black outlines of heathy hills to give strong contrast, we see great breadths of elm. chesnut, maple, and alder, in their several strong shades, rivalling the grandest of sunsets, and by their very colours suggesting that there will be found a delicious order among their falling leaves. Though in gardens our effects must be all on a smaller scale, they may, nevertheless, be made still richer in their way; for the glories of a country full of hedgerow elms, and Spanish chesnuts, and oak woods, delight quite as much because of the magnitude of the features which give the scenery its character, and there are no British forest trees capable of rivalling, in their individual forms and colours, some of the choice subjects cultivated in shrubberies and gardens. Take, for a familiar example, the common Virginian creeper, Ampelopsis hederacea, and what can surpass the splendour of its perishing leaves at the present time, where it covers the whole side of an old mansion with a sheet of fire? Where skilfully managed, so as to be trained over ivy without choking it, the Virginian creeper is one of the grandest wall plants we possess, and the only skill required to manage it with ivy is to cut it back severely as soon as the leaves are down, leaving a few strong, long rods at intervals of about four feet, the growth from which will be sufficient to make a brilliant display in autumn, but not sufficient to prevent a free growth of the Amongst our common shrubs, we have nearly as brilliant a display now in the common sumach, Rhus typhina, which is at all seasons a fine subject for conspicuous positions where moderate growth only is required, and remarkably effective when planted in large masses. When fully exposed to the sunshine, on a tolerably dry soil, the foliage of this tree dies off a brilliant red, and the tufts of feathery flowers frequently remain all the winter through. cockspur thorn, Mespilus crus-galli, is now brilliantly coloured, the large-lobed leaves having changed from a cheerful green to a bright amber, which is again changing to deep red, in which state they will end their career. In our rambles lately we have been much struck with the autumnal beauty of the common dogwood, Cornus sanguinea, which dies off a rich reddish-purple, which, when illuminated by the setting sun, has a fine effect in the midst of darker greens, and ruddy and russety hues. There are few subjects more suitable for approaches and the fronts of mixed plantations than the scarlet oak, Quercus coccinea, which is now flame-like in its glory; the champion oak, Q. rubra, which dies off a rich blood-red, less attractive than the last, and yet, nevertheless, superb. The scarlet maple, Acer rubrum, is beautiful at all seasons, except in the dead of winter, but is now at its best. Less distinctive, but still beautiful in their winter dress, and invaluable for variety, are the tulip tree, Liriodendron tulipifera; the Norway maple, Acer platanoides; the sugar maple, A. saccharinum;

the ash, Fraxinus excelsior; the Venetian sumach, Rhus cotinus; the elegant Maidenhair tree,* Salisburia adiantifolia; and the Kolreuteria, K. paniculata, which give several shades of amber, yellow, and

orange, as their leaves decay.

These are but a few which might be enumerated; but they are such as occur to us as we look out of our study window, and note the beauty of the autumn colours, and call to mind some of the woodland scenes amid which we have been rusticating of late. But in looking at gardens, and thinking of forest trees, the idea occurs to us that amateur gardeners are deterred from planting ornamental trees in quantity because of the great size they usually attain, and the many years that must elapse ere they acquire their true characters. But there is a way of turning to account in a garden or shrubbery any deciduous tree, however gigantic its habit of growth, provided its foliage or flowers are such as would render it an attractive object, if it could be kept in a comparatively small state. This is easily done, not by lopping and pruning in the ordinary way, which makes many trees so ugly that it is a pain to behold them, but by compelling them to grow bush-fashion. Suppose a border in which flowers rarely come to perfection, it would be strange if forest trees would not thrive there. Plant a lot of planes, maples, sumachs, oaks, beeches, and other of the subjects enumerated above; let them grow as they please one season, to get their roots established, and the next winter cut them all down to within three feet of the ground, or cut only such as have run up in a spare manner, and leave sumachs and other dwarf and shrubby subjects untouched. The next spring the stumps will throw up a number of strong shoots, and produce leaves of an enormous size; and if the selecting and grouping are skilfully done, the effect will far surpass any ordinary shrubbery scenes. When we advise the amateur to plant trees and shrubs that may contribute to prolong the attractions of the garden beyond the season of summer flowers, we mean that they are to be planted properly. It would be unfair to speak in these terms were it not lamentably a fact that a large proportion of the trees supplied from the nurseries are simply stuck in holes by the purchasers, and, in a proper horticultural sense, are not planted at all. If trees are planted on the hypothesis that they will live, and beautify the spot they occupy, the ground ought to be first deeply trenched, well manured, if at all poor through frequent cropping, and the trees should be planted when the soil is comparatively dry, and the roots carefully spread out, and covered with dry, crumbly soil. Trees planted to be cut down in order to produce rich screens of foliage, should be liberally manured, and after the autumn pruning the ground should be mulched with rotten manure. A fine frontage to a dwarf plantation may be made by planting such things as Ribes sanguineum, Spirea prunifolia, Persian Lilacs, Laburnums, Weigelias, Forsythias, and intermixing with them a few hardy herbaceous plants.

^{*} There is a fine specimen of Salisburia, the finest, perhaps, near London, in the nursery of Messrs. Cutbush, of Highgate.

EXTENSO GRAPE VINES.

HE horticultural world has been for some months past agitated by the discussion of the question, whether grape vines under glass should be closely pruned, and restricted to one or two rods each, or allowed to roam far and wide, as is the nature of the vine to do? In

other words, the question is, whether it is most profitable and satisfactory to the cultivator to plant in a house as many vines as there are rafters, or to plant one or two, and allow them to extend over the whole of the space to be covered? It is a question of gigantic versus miniature vines, and there is much more in it than many good grape-growers are willing to concede. The customary way of planting a house of vines is to apportion a plant to every rafter, and to keep them to that. The laterals are pinched back, and in winter are pruned back, close to the rod, on the system called "close spur pruning." For some years these vines give fine bunches in moderate plenty; but in many instances it has been found that the health of the restricted vines declines, and the bunches become fewer and of inferior quality. On the other hand, it is found that vines allowed to extend over large spaces improve in health and productiveness, and in the quality of their produce, as they advance in age. Here is the gist of the discussion, the point on which it turns to be of any interest and any use. It is true that there are many vineries where restricted vines are still in good health after many years of abundant production, and there may be many extended vines that are in a poor condition and quite decrepit. But after all that has been said, the balance of evidence is in favour of extension, and this, we need scarcely point out, is in keeping with the teachings of Nature. We see the vine, when allowed to grow wild, attaining to enormous dimensions, throwing its long arms about in all directions, and sending its roots, with immense power of penetration, amongst the hardest rocks in search of food. So also such few examples of great vines under glass as are known to English horticulturists afford abundant evidence that for the health and fruitfulness of the grape vine liberty to roam far and wide is an essential condition. All that we hear of shanking, mildew, badly-coloured berries, leaves ruined by red spider, and a dozen other dreadful ailments, are invariably found in connection with restricted vines; and we may reasonably infer that a plant naturally so vigorous and rampant in growth should become subject to disease when arrested at every point in its tendency to free development. In case any reader should be curious to know what is meant by "extension," we will cite the famous vine at Finchley which Mr. Kay planted, and which Mr. Osborne now manages so well. This vine is a Black Hamburgh. It was planted in 1855 in a house eighty-nine feet long, sixteen feet wide, and nine feet six inches high to the apex. The roots are all outside in a border eighty-nine feet in length, by fifteen feet broad. The vine is trained with a leading stem from the centre of the north side wall up to the apex, and down to the south wall, for the house runs east and west. From this main stem five laterals are trained towards each end of the house—one at the apex, the others equidistant between the apex and the walls. Mr. Thomson, in the new edition of his admirable treatise on the Grape Vine, says, "The last time I saw it was in 1864, when it had a full crop of excellent grapes, weighing, as I have since learned, four hundred and seventy-six pounds, and in 1866 it had a crop of three hundred bunches, some of them weighing five pounds each. It took seven years to furnish the house with bearing wood. The girth of the stem where it enters the house is, at this date

(May, 1867), fourteen inches." The question may arise with those who contemplate the planting of vineries, how to bridge over the space of time required for the filling up of the house by one vine? This is easy enough, and there are several ways of doing it. The simplest method that occurs to us at this moment would be as follows:—Suppose the house to be a span running east and west. We should form on the south side a long border of a rather poor nature, and consisting in great part of sandy loam, with an admixture of broken bricks and two-inch bones. This would be the border for the permanent vine, which we would carry into the house in the centre, with a view to train it right and left, and thus by degrees fill the whole house with it. On the opposite side we would make a narrow, shallow border of very light, rich soil, and in this we would plant sufficient vines to furnish every rafter at once with a fruiting rod. As the permanent vine could be extended, we should remove these temporary ones, and in the course of a few years they would all be gone, and we should have the borders for other purposes. In a house running north and south, it would scarcely matter on which side the permanent border was placed. A writer in a contemporary, treating upon this subject, says:— "There is no reason that a house should remain partly unstocked until one vine fills it. We say, plant each rafter—in duplicate if you please; but if one, three, or six vines will, by allowing them to develop themselves, adjust the balance of force better than twelve or eighteen smaller plants crowded together, then we say, let Nature assert her prerogative, and let us accept the superior results which she offers. In planting with a view to the cumulative system, fix the sites for the one or more vines which are intended ultimately to occupy the house, filling in with secondary plants, and let it be a rule that the permanent vines shall not be over-cropped, and that the secondary ones shall be made quite subservient to the others. To illustrate what we mean, it may be mentioned that in a vinery planted last season with thirty-two vines, we intend to reduce the number ultimately to eight, and it will be done in this manner. The vines, now standing in line, will be reduced to groups of four plants. From one of the two centre points in each group a branch will be carried this season, and be inarched upon the other, and that completed, two other shoots will be carried to fill the space of the outside vines. In this manner the force of two sets of roots will be retained to support one vine, as we anticipate, with corresponding success. When the late Sir J. Paxton first went to Chatsworth, he planted duplicate

vines in a long range of vineries, with the intention, as he explained at the time, of inarching the two together; but whether he did so or not, we do not know." It must be understood that there is nothing new in the idea of extending a vine far beyond the limits of a single rafter. If there be anything novel in the case before us, it is in the excess to which the restrictive system has been carried; and this probably is the result of the participation of grape-growers in the spirit of hurry with which everything is done in modern times. Sooner than wait for one good healthy vine, they prefer a number giving fruit at once, but unable (in many cases) to stand on their legs for a few years together. To sum up this brief paper, we may enumerate the advantages of extension to be—1. Improved health and vigour of the vine. 2. Increased production. 3. Berries constantly improving in flavour, the best-flavoured grapes being the product of old vines. 4. Better colour. 5. Less watchfulness required as to stopping, pruning, and training; for if a large vine goes a little wild, there is no harm done, but on the vine-to-a-rafter system there must be incessant and almost painful attention. 6. Less care required as to the border, as the roots can go where they like, and are almost sure to go where it is best for them. 7. Insect pests become almost unknown; for, as in the case of plants of all kinds, free growth is antagonistic to disease and the lodgment of parasites. 8. Earlier ripening. 9. The building of a large house for a vine may be accomplished by instalments, as the vine will not want the whole at once; therefore the plan may be determined on, and the vine may be planted, and a half or a third (or less) of the ultimate length of the house may be completed as required.

In conclusion, it seems only proper to remark that the arguments for extension of grape vines may be applied to all other fruit trees, and especially peaches, nectarines, apricots, pears, and cherries, which are usually grown on walls, and too frequently cruelly restricted in dimensions.

S. H.

THE BEST STRAWBERRIES.



O classify a list now, we should look more to the prolonging of the season, the quality and size of berry, to the habit and hardiness of the plant, to its flowering properties, and how they would be affected by sudden vicissitudes, than to the mere colour of the berry. In

endeavouring to cater towards that end, cross-breeders have sunk that little bit of technical colour distinction, and if black, and red, and white get mixed together by natural interfusion, like so many colours on the palette of an artist, no matter. It is no advantage to an amateur grower, and very little indeed, to our great gardeners, to grow a numerous family. Numbers of varieties are often tantalizing, being of little practical use to most growers, and only admissible where a thorough system of testing is organized. To test straw-

berries well, they should be grown on an exposed quarter of ground, well trenched and manured, and not on those little narrow wall-borders, which often neither present surface nor subsoil sufficient for a fair test to be taken; and yet we often hear both amateurs and gardeners, upon the faith of incomplete, partial, and therefore anything but satisfactory evidence, calling out loudly either for this or against that sort. No plant repays first-rate cultivation better than the strawberry; and if any of our readers doubt it, pray, first opportunity, ask any of the great market gardeners around London, and they will tell them of the advantage of deep tillage and good manure.

All things considered, we must still give place to two of our oldest favourites, Keen's Seedling and British Queen. The former is invaluable as a grower, a bearer, and a general fruit for the great list of those who possess cottage and villa gardens. The latter is a little more tender, requires a good climate, and, if it can be had, a better loamy soil, incorporated with grit. If that be come-at-able, it is a noble sort, having all the qualities to be desired in this kind of fruit but colour. Under the best culture it is deficient in this point, and although it now has a few rivals, such, for example, as John Powell and Crimson Queen, we would not displace it from its high position. In some localities this latter may be had equal in flavour to British Queen, but not generally so; it undoubtedly is its equal in size, and

its superior in point of colour.

President is a noble fruit, fine in form, excellent in colour, very free and hardy, and will always rank high in point of appearance. It does not possess the flavour of Oscar or Sir Harry, but it is one, notwithstanding, that ought to be generally grown. Sir Harry has been much abused, and Mr. Underhill, if he sent out a spurious variety along with it, has something to answer for. The true variety is of very hardy constitution, withstanding the cold of May better than most of its compeers, and is a good average cropper, with berries of full average size and of very good flavour. The Lady has not been sufficiently tried, but we doubt, from our experience of it, if it is a match for Sir Harry. Marguerite is a very desirable sorta very excellent forcer, and a good, free bearer-when dished looks tempting, and when tried is not disappointing to even critical palates. Sir Joseph Paxton is also first-rate, somewhat after the character of President, but not so large. Dr. Hogg is very much allied to Crimson Queen, possessing a most excellent flavour. If there be a sufficient distinction, which another year's growth will sufficiently prove, it will be one of the best of modern introductions. La Constante comes generally good, is a very late sort, and yet offers to be a good forcer. Its habit is one of the best, and might be looked upon as a model in that respect, being bushy and dwarf, yielding large, finecoloured, and finely-formed fruit in abundance. In some of the colder localities the bloom was partially destroyed under the influence of a by no means auspicious spring and opening summer; but we look upon this in an ordinary season with great confidence.

As a preserving strawberry, Black Prince has been often used; but we have now a far better one in Ingram's Prince of Wales. It

shows a moderately-sized berry of the best colour, and possesses a fine piquant flavour. It is an object with those well up in preserving this fine fruit to keep the berries entire, and if they can be had as nearly uniform in size as possible, so much the better. No preserve is more difficult to make to satisfy the eye and the palate than this; and the first-class housekeeper prides herself in these two things—preserving them to appear whole, and of a rich, ruby, transparent colour.

Such are the names of the principal varieties we recommend for general cultivation. With them, properly cultivated, no one, neither cottager nor lord, need care for more, although we would not reject either the Hauthois or the alpines when a little variety in flavour, colour, and size, is desiderated.

THE SENSITIVE PLANT.

N its native country (Brazil) this singular plant, Acacia mimosa, grows to the height of seven or eight feet, and is armed with short recurved thorns; the leaves grow upon long footstalks, which are prickly, each sustaining two pair of wings. From the place where these

are inserted come out small branches, having three or four globular heads of pale purplish flowers coming out from the side on short peduncles. "Naturalists," says Dr. Darwin, "have not explained the immediate cause of the collapsing of the sensitive plant; the leaves meet and close in the night, during the sleep of the plant, or when exposed to too much cold in the daytime, in the same manner as when they are affected by external violence, folding their upper surfaces together, and in part over each other, like scales or tiles, so as to expose as little of the upper surface as may be to the air. Many of the pinnate acacias close also at night, but are not otherwise sensitive, and do not indeed collapse quite so far, for when touched in the night, during their sleep, they fall still farther, especially when touched on the footstalks between the stem and the leaflets, which seem to be their most sensitive or irritable part. Now, as their situation after being exposed to external violence resembles their sleep, but with a greater degree of collapse, may it not be owing to a numbness or paralysis consequent on too violent irritation, like the fainting of animals from pain or fatigue? A sensitive plant being kept in a dark room till some hours after daybreak, its leaves and leafstalks were collapsed as in its most profound sleep, and on exposing it to the light, above twenty minutes passed before the plant was thoroughly awake and had expanded itself. During the night the upper surface of the leaves are appressed. This would seem to show that the office of this surface of the leaf was to expose the fluids of the plant to the light as well as to the air.

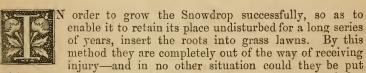
I have kept it in the dark and unexpanded during the entire day. Although easy grown, and required to be treated simply as a ten-

der annual, there is no plant we grow requiring so little trouble, that excites such a lively interest, and yet is cultivated by so few people, as this sensitive plant. Dr. Darwin thus describes it prettily in verse:—

"Weak with nice sense, the chaste Mimosa stands,
From each rude touch withdraws her timid hands;
Oft as light clouds o'erpass the summer glade,
Alarmed, she trembles at the moving shade,
And feels alive through all her tender form
The whisper'd murmurs of the gathering storm,
Shuts her sweet eyelids to the approaching night,
And hails with freshen'd charms the rising light.'

E. S.

SNOWDROPS ON GRASS LAWNS.



with more telling effect while in bloom—the roots better cared for, and less liable to rot during their nine months of apparently dormant condition. If this system were more generally adopted, the flowers might be enjoyed for seven or eight weeks, according to the weather and the distance the roots were inserted into the earth. The method of procedure is to dibble holes into the grass from 12 to 18 or 20 inches apart, according to the extent of the lawn to be planted, and at depths varying from 4 to 6 inches, and to drop one, or sometimes two roots into each hole, the small plots in front of villa residences looking best when they are placed at the lesser distance apart.

Snowdrops might also be arranged round plant clumps when cut in grass, keeping them at a uniform distance from the edge all round, say one row within a foot of the edge at 4 inches in depth, and another a foot or so apart at 6 inches in depth. By this method the shallow-planted bulbs will flower first, and the deeper ones afterwards, thus securing a longer succession of them. Monograms, crests, and coronets, also figures of every description, may be represented on the grass by dibbling the roots in an outline of the form required. As the season advances the leaves decay, and nothing is to be seen of them when the first cutting of the grass takes place. To regulate any arrangement for having them in circular lines, or to represent letters or figures, a small piece of wood may be placed across the dibble at 4 or 6 inches from the bottom, so as to secure a uniform depth of hole while inserting it in the ground; but for all lawn purposes irregular depths will be preferable, in order to secure a succession.

SHRUBS AND FLOWERS WHICH THRIVE UNDER THE DRIP OF TREES.



S many of our readers are likely to take an interest in these, we enumerate a few, and shall be much obliged to anybody who will add to them. Japanese Berberises, Philadelphuses. Hollies. Cornus alba, sanguinea, Corylus Avellana, Daphne Mezereum, Euonymus japonicus,

Hypericum hircinum, Androsæmum, and calycinum, Lonicera tartarica and Xylosteum, Mespilus germanica, Rosa arvensis, Rubus odoratus, Sambucus nigra and racemosa, Spiræa sorbifolia, Symphoricarpus racemosus, Aucubas in variety, Buxus sempervirens, Daphne Laureola, Viburnum Tinus, Ruscus racemosus. The Ivies, the Privet, and several of its newer varieties, especially the oval-

leaved one, and also the Japanese Privet.

Of rough-growing herbaceous plants suited for covering the ground in summer, the following are good: Hypericum hirsutum, Sambucus Ebulus, Saponaria officinalis, Spiræa auruncus, Vicia sylvatica, Vinca major and its varieties, V. minor and its varieties; the Pampas Grass, Sand Lyme Grass, and Ribbon Grass (three varieties); Carex pendula, Willow Herb, Perennial Sunflowers (double and single), Phytolacca decandria, Siberian Cow Parsnip, Acanthus mollis, Asclepias syriaca, Asperula odorata. Strong coarse ferns like Lastrea filix mas, of shade-loving tastes, and Digitalis purpurea.

CONIFERS FOR THE FLOWER GARDEN AND ITS IMMEDIATE SURROUNDINGS.



ONOTONY of surface and monotony of vegetation have for a long time past been the bane of our ornamental gardening, and there are few persons of any taste or experience in those matters who do not admit that we must vary both one and the other. No matter what

our small-flower treasures or interest, we cannot go on making more important and much-resorted-to parts of our gardens devoid of any beauty beyond that of low and fleeting vegetation. We must rise; we want in the first place dignified and bold surroundings at all

times, and we want permanent interest and beauty.

It is already admitted that we want verdure and grace, or we tacitly admit it by introducing subtropical plants which are expensive to keep, and impossible to cultivate in the open air in many parts of the country. Among conifers we have that comparatively dwarf but pyramidal habit which we want so much, while, when we come close to them and examine them, we find they are in many cases as elegantly chiselled and dissected as the finest fern. Every-

where in this grand family are to be seen evidences of this, and never have we looked upon more beautiful masses of verdure than such plants as Retinospora plumosa and obtusa when well developed; they are simply invaluable for those who use them with taste. Apart altogether from our want of a more elegantly diversified surface in the flower garden, the best and most practical way to meet which is by the use of such plants as these, and neat and elegant young specimens of such things as Thujopsis borealis, the recurved Yucca, etc., there is in many British gardens a great gulf between the larger tree and shrub vegetation, and the humbler colouring material which most will admit should be filled up, and there is nothing known more suitable for it than these. It were better to see additions to the dwarf and elegant group of conifers than almost any other, inasmuch as they are so eminently fitted to meet a great want of the present day—a more diversified and verdant kind of

aspect among the dwarfer inmates of flower gardens.

Much as conifers are grown with us, how few people have any idea of their great value as ornamental plants for the very choicest position in a garden. We are sometimes too apt to put them in what is called their "proper place"—or, at all events, too far from the seat of interest to thoroughly enjoy them in winter, when the beauty of their form and their exquisite verdure are best seen. If the dwarfer and choicer conifers were tastefully disposed in and immediately around a flower garden, not altogether spoiled by a profusion of beds for masses of colour, that flower garden could hardly fail to look as well in winter as in summer; in fact, we have seen places where, from rather close association of the more elegant types, the best kind of winter garden we have ever seen was made. In truth, our efforts must tend to prevent a desert-like aspect at any time of the year; and to this end nothing can help us more than a judicious selection of conifers. Almost every beauty of form is theirs. They are of permanent dignity and interest, always occupying the ground and embellishing it-displaying distinct tints of the ever-grateful green in spring and summer, waving majestically before the gusts of autumn, and tellingly beautiful when bearing on their deepest green the snows of winter.

We will offer two selections, one for the surroundings of the flower garden, say the pleasure ground, more or less removed from the centre of interest; the other for the closer association with our ordinary race of flower-garden plants, and, in fact, for any suitable position in flower gardens, no matter whether natural or geometrical, for terrace or for the selectest spots in the pleasure grounds. We will commence with the last, as the more important class:—

CHOICE DWARF AND ELEGANT CONIFERS.

Abies Pygmæa Arthrotaxus cupressoides (selaginoides) ,, laxifolia (Donniana)

Biota cupressiformis

, nana

, orientalis elegantissima

Biota orientalis variegata aurea Cephalotaxus drupacea Chamæeyparis sphæroidea variegata viridis

Cryptomeria elegans Cupressus Lawsoniana Cupressus Lawsoniana nana

variegata 22 Nutkaensis

Dacrydium glaucum Juniperus Chinensis

variegata excelsa stricta

fragrans hibernica 91

tamariscifolia 22 variegata

virginiana viridis pendula Retinospora ericoides

leptoclada

Retinospora lycopodioides

obtusa " aurea compacta

pisifera alba variegata

Taxus adpressa

baccata elegantissima variegata

Thuja aurea nana

Thujopsis dolabrata latævirens

To this we will add a selection of the kinds most suited for the surroundings of the flower garden and pleasure ground-of kinds which, though noble and graceful as can be in many instances, are yet too large for any but the framing of the picture, so to speak :-

Abies Douglasi

Engelmanni Menziesi inverta

Hookeriana orientalis

Cephalotaxus Fortunei Juniperus virginiana glauca thurifera

Libocedrus tetragona Picea amabilis (magnifica)

nobilis

Nordmanniana

Picea Parsonsi

" Pinsapo Pinus Cembra

monticola

insignis (where it thrives). Sciadopitys verticillata

Thuja Menziesi (Lobbi) " plicata " pyramidalis

Thujopsis Standishi Wellingtonia, of course.

-The Field.

ON TRANSPLANTING TREES.

BY ROBERT HUTCHISON, OF CARLOWRIE, KIRKLISTON.



N transplanting, the first care of the workmen is to dig a trench around the plant at a radius of not less than 6 feet from the stem. Having done so to a depth of about 2 to 21 feet, the points of the spades may be directed inwards towards the root of the tree, and having thus disengaged the plant from its moorings, it may be carefully lifted, if the dis-

tance be short, to its new position.

Should the ball be composed of such earth as is apt to crack or break away, it should, before being lifted out of the trench, be properly secured by boards roughly nailed around it, after having been carefully tied together and sewn up in matting,

and damped.

Too much attention cannot be paid to the protection, as much as possible, of the young roots from the influence of the atmosphere; and, consequently, to save unnecessary exposure, the pit intended for the reception of the plant should be previously dug and prepared for it. If the weather be dry and favourable, we do not object to this having been done, and the earth thrown up to pulverize under the action of the air for a couple of weeks prior to the operation of transplanting.

Before placing the root-ball into the pit, a little dry, fine soil should first be thrown into the hole, and if the situation be very low, or the soil heavy, it is a decided advantage to have the immediate spot well drained by means of small loose stones, or coarse gravel, laid in narrow slits radiating from the pit to a distance of about three yards, deepening such little runlets for superabundant moisture at the extremities to at least a foot below the level of the bottom of the pit. By these channels the root-bed is rendered less liable to root-damp, the great obstacle to the success of newly transplanted trees, which is frequently originated by hard tramping

and over-watering at the time of removal.

Having thus placed the tree in the site, the soil is next cautiously filled in to the hole, care being taken to firm it well; but, in doing so, it is especially requisite to avoid lacerating the small roots, and when the earth is all filled in, there should be formed around the neek of the tree a trough or hollow, to prevent the operation of watering from washing away the soil, and thus exposing the rootlets near the surface of the ground.

In planting the tree in its new situation, it is sometimes customary to reverse its position, if it happens to have a weather side, or an unequally balanced head, and to turn towards the stormiest point the side of the tree best furnished with branches. In this way the habit of the plant to turn its branches from the wind is corrected, and its future appearance improved. Where much inequality exists, or where long limbs predominate too much, a little judicious pruning may be also desirable. In no case do we advocate root pruning in transplanting deciduous or other trees.

In the manner thus indicated, specimens from about three to six and eight feet in height are removed without the aid of machinery; but where a good root-ball cannot be obtained, a transplanting apparatus should be employed; and, when this is necessary, we have found the 30-inch transplanter, patented by M'Glashan, of

Edinburgh, at once efficient, easily wrought, and economical.

The same general rule is applicable to all methods of transplanting, whether by manual labour or by machine, namely, to disturb the functions of nature as little as possible, and when disturbed to provide for the injury a speedy remedy. Thus very large plants may be transported any distance with perfect safety. When the operation is conducted by manual labour only, and a considerable distance has to be traversed to the new site, we have found it best to place the specimen upon a handbarrow, and to have the same borne by two or more labourers, seated in a springeart, and, in this way, neither the jolting of the springs, nor the rough unevenness of the road, affects the stability of the root-ball. When placed in its new position, it is well to have the pit somewhat larger than necessary, and into the vacant space around the ball to pack closely a quantity of fresh mould, composed of well-rotted turf mixed with leaf-mould; and, after one good drenching of water, the tree may be left to its fate.

Should very dry weather supervene, it may be necessary to add more water. Yet this is rarely requisite; and we think that mischief is too often done by frequent repetitions of watering. In administering the thorough soaking when planted, it is best to apply the water overhead—that is, upon the leaves and foliage of the tree, and not merely to pour it into the roots. By this precaution, the invariable tendency to profuse perspiration which the leaves of a transplanted tree exhibit, is prevented or modified, and, consequently, any undue drain upon the system of the tree from that cause is obviated. To aid the success of transplanting, it is almost unnecessary to add that the operation should only be conducted in dull or cloudy weather.

Security against the swaying of the plant from the action of wind is the only other precautionary measure, subsequent to planting, requiring notice in this paper.

As soon as removed, all specimens should be firmly secured against the sudden attacks of gusty weather. Generally speaking, in the case of large trees, the rootball will be found a sheet-anchor of sufficient weight (if the tree has been properly

lifted) to cope with the violence of the elements.

It is well, however, to moor small or tender trees by stakes well driven into the ground, probably to a depth of three feet, or by ropes or strand-wires fastened to stakes driven into the soil around the root. Another method sometimes employed to secure steadiness of the tree in its new position, is, in transplanting, to splice to its leading roots long pieces of tree-roots, from 15 to 20 feet long and about two inches diameter, cut from other trees—thus the lever power, and resistance of the roots against the swaying of the head by the wind, is greatly increased, until the tree takes hold of the soil for itself, and becomes thoroughly established in its new site.

In cases where ornamental shrubs or trees are planted, with the prospect of being again, at no distant date, transplanted, it would be well to proceed thus:—

Having dug the pit for the reception of the tree, drive four stobs into the ground to the head, one at each corner of the hole; to these four corner posts nail strong boards of common fir planking one inch thick and six broad, or of paling rail, leaving narrow openings between the joints; in this underground framework the tree will expand and spread its roots, and when the time arrives for transplanting, a trench is dug round the wooden casing; the four corner posts or stobs are sawn over at the bottom; a flat shovel or spade is used to skim under the root-ball, for the purpose of cutting the downward rootlets; a rope is passed from either side under the casing, and fastened to the tree stem above, so as to keep the whole firm, and in this way, and with little expense and trouble, the plant may be transferred to its new position. This mode of transplanting has this advantage, that the delay and cost of previous preparation are avoided, time and labour are saved during the operation itself, and a certainty of success is, in ordinary circumstances, insured. It may be prosecuted in ornamental grounds, where, at the time of laying out, it is quite obvious that in a few years many of the specimens planted will require to be removed or sacrificed, to leave room for the others.

We may notice, in passing, the ingenious but old-fashioned mode of freezing the earth around the roots for the purpose of obtaining a good retentive root-ball, but we do not recommend it. It necessitates the partial exposure of the rootlets to the weather at its most inclement season, till sufficiently hard frost sets in, and the season for the removal is limited to a period of severe frost; and although, from the process of freezing the mass of earth round the roots, these organs may sustain no injury, still the whole method-is obviously clumsy, and the foregoing objections are

sufficiently strong to condemn the process at the present day.

Many practical results are within our knowledge to justify the seasons and circumstances for transplantation advocated in this paper. We may observe, as instancing between the comparative advantages of autumn and spring, or early summer planting, the following example, amongst many others, in favour of the

latter season for evergreens :-

At C——, soil rich loam of considerable depth, on a rather damp, clayey subsoil; elevation above sea-level, 90 feet; in the month of November, 1856, a thick belting of evergreens, chiefly Portugal Laurels, Bays, Hollies, Yews, etc., was formed. The plants were about $2\frac{1}{2}$ to $3\frac{1}{3}$ feet high, and were carefully "pitted" in the usual way. A moderately severe winter ensued, and the losses by next April were from 40 to 50 per cent. This arose not so much from the severity of the frost, as from the influence of the chilling east winds of spring in February, March, and April, succeeding a considerable period of wet weather, acting upon the plants before they had become established in their new site. The blanks thus created were made up in the spring of 1858, from the same nursery stock and in the same manner as before, but at the beginning of May instead of in the autumn; and the consequence was, that not only was there no case of failure, but these last removed plants are now much taller and stronger specimens than the survivors of the previous year's planting.

To notice the advantageous results of Midsummer transplanting, we need only refer to the trees removed during the summer of 1863, at Goldenacres Nurseries, to test and exhibit the power and advantages of M'Glashan's Patent Transplanting Apparatus, and which are all very healthy and thriving. These trees are chiefly Coniferæ and ornamental Oaks, such as Quercus panonica, salicifolia, pterifolia, etc., and ranged from about 4 feet to 11 feet in height when removed. The operations of transplanting them were carried out during June, July, and Angust, 1863, and not only had none of the plants lifted sustained any injury, but even in the following spring, and ever since, they have gone on producing vigorous shoots of young wood; several Thorns removed having, in 1864, made growths of about $3\frac{1}{2}$ feet in

length!

Before concluding this paper we have to notice the comparative advantages in point of cost, progress, etc., of transplanting trees from 3 to 6 feet high, instead of the larger specimens usually removed for purposes of immediate effect. When permanent results are desired, and value as well as amenity has to be added to the estate by the growth of healthy timber, there can be no doubt that the advantage is in favour of the smaller specimens. It may, no doubt, be desirable to clothe with rich foliage the barren landscape, or afford protection to weather-beaten flocks and herds, by calling into immediate existence the sheltering belt; and where the

subjects can be procured, to be thinned out, or where clumps are to be found to draw from, the practice of removing large trees may be adopted with benefit and success at no very extravagant expense; and thus enhanced value may be given at once to bare pasture lands; but the art must ever be limited, and it is not in the case of large trees applicable to the general purposes of utility. It may be argued in favour of economy of the practice of removing large specimens, that extensive tracts of ground usually occupied by young trees and nurses may be saved for other purposes, that the expenses of fencing and of maintaining plantations during years of unprofitableness, and of cleaning, thinning, and pruning, may be avoided, if trees of large growth were more generally transplanted than those usually employed, and that the difficulty of raising in some unsuitable localities and soils several of the slow-growing varieties during their tender years would be avoided; but in opposition to such specious arguments we can only remark that, while for immediate landscape effect, and for that only, the larger the tree removed the better, provided it be done successfully, and be not transplanted to its new site in a mutilated condition to pine and decay, and such means must be employed by those who desire to anticipate years of growth and progress to attain their objectstill their pleasure must be dearly bought at the price it costs, and the risks of fa lures they incur for a few years of merely temporary advantage. On the other hand, those who are satisfied with transplanting for the purpose of immediate effect, specimens of from 3 to 8 feet high, will be more amply rewarded, for at much less cost and trouble, and with prospects of greater certainty of success, they obtain a far more rapid and healthy growth of young wood, as well as a more enduring superiority of timber; and they consequently bequeath to their posterity a richer and more valuable gift, in the more permanently improved and enhanced value of their property.

BULBOUS FLOWERS IN THE GARDENS, SQUARES, AND PUBLIC WALKS IN LARGE TOWNS.

BY SAMUEL BROOME, F.R.H.S.,

Gardener to the Honourable Society of the Inner Temple, London.

AVING made up my mind to attempt a spring garden in the heart of London, trusting that if successful it would, by example, induce a better

system—or perhaps I ought to say, to encourage some attempt at a system—of floral display in our dingy London squares and churchyards. I selected the hyacinth, tulip, and crocus, as subjects with which I should have the best chance of success. Having procured a good supply of each, my first step was to decide where to plant them. After some consideration, I chose the ten circular beds on the slope at the south side of the north walk, and the six larger oval beds lower down on the same slope, also the small oval beds on the west and east sides of the lawn. But here a grave difficulty presented itself. All the beds were at this time filled with chrysanthemums coming fast on towards the flowering season; to pot and plunge all the bulbs would have taken some thousands of pots, which I did not possess, to say nothing of the labour. However, I hit upon a plan. I commenced the first week in October to plant them temporarily under some trees in a sheltcred west border. I first placed on the soil three inches of cocoa-nut fibre, and on this planted my bulbs, the hyacinths about four inches apart, the crocuses about three inches. I then covered them with three inches more cocoa-nut fibre, putting on the top of all a thin layer of brushwood to prevent the cats from scratching them up. At Christmas I took the chrysanthemums out of their hels, and placed them in their winter aparties. their beds, and placed them in their winter quarters. I then dug up the beds for the hyacinths, say eighteen inches to two feet deep, and incorporated a good dressing of well-rotted dung. I should have liked to have added some good, light, maiden loam from the country, but, with the exception of a few loads for potting purposes, very little of this comes to my share; consequently it must be borne in

mind these hyacinths grew and flowered in soil that had not been changed, except with the addition of the dung, for fifty years or more. This places the hyacinths in the first rank of bulbs for town gardens. My next operation was to take up the bulbs from their temporary lodgings. This I accomplished by pushing a hand-fork underneath the cocoa-nut fibre, and lifting up the bulbs in patches (being very careful not to disturb the roots), and placed them gently on a hand-barrow for convenient transport to the respective beds already prepared for them, where they were planted out about nine inches apart and two inches below the surface. Every bulb had by this time thrown up a remarkably strong shoot about two inches above the crown of the bulb. I then covered all over with half an inch of cocoa-nut fibre. I luckily got all this done before the tremendous frost set in. I had taken the precaution of placing over the beds a number of bent sticks, and during the severest weather a mat was thrown on at sunset, and taken off at nine A.M. Only one variety was planted in each bed, thus insuring uniformity in height, colour, and time of blooming, and presenting, when in flower, a most effective mass of colour. The varieties grown were as follows:—Single reds and rose colours, Charlemagne, Fanny Kemble, Johanna Christina; single blues and purples, Duke of Wellington, Charles Dickens, Baron Von Tuyl, William the First; single pure whites, Grand Vainqueur, Victoria Regina, and Madame Tallyrand.

The single varieties are for bedding purposes much more brilliant and effective than the doubles. Nothing could be more satisfactory than these hyacinths; not one had failed. They were in bloom nearly a month, and produced spikes of flowers six to eight inches in length. I may say, without vanity, I never saw

finer flowers out of doors.

The crocuses were treated in the same manner as the hyacinths, and finally planted out round the margin of the hyacinth beds, where, after flowering (which did not last long, as the wet and cold set in just as they were coming into full beauty), their foliage formed a pleasing relief to the brilliant colours of the hyacinths. The varieties I find do best here, are the large Golden Yellow; Prince Albert, lilac; David Rizzio, purple; Ne Plus Ultra, blue, edged white; Albion, striped; Sir Walter Scott, striped; Cloth of Silver, striped; and Queen Victoria, white. As a rule, the blues, purples, yellows, and striped, are the best for smoky

localities in towns, the whites being somewhat more delicate.

We now come to the tulips. Some of these I planted temporarily, one portion in cocoa-nut fibre, the same as the hyacinths; a second portion in a similar manner, but in well-decayed leaf-mould; the remainder I planted at once in the beds in which they were to bloom. Those planted in the leaf-mould flowered better than those in the cocoa-nut fibre, but those that were put directly into the flowering beds did best of all. I planted these in the first week in November, having previously well-trenched the beds, incorporating a good dressing of decayed leaf-mould (of which I find the tulip is excessively fond). The bulbs were placed three to four inches deep, and four inches apart; they began to bloom the middle of April, and continued in magnificent display till the storm on the 10th of May destroyed them. A few other tulip bulbs were planted in common border earth, with a slight dressing of rotten dung, but they did very badly, as I found the worms in the dung had eaten the roots; but, probably, had I placed a small quantity of silver sand round each bulb, it would have defended them from the attacks of the worms, and the tulips would, perhaps, have succeeded better.

Where it is inconvenient to plant the tulips at the proper time (November) in the beds in which they are to flower, I should recommend their being potted into 60-sized pots, one bulb in a pot, the soil to be composed of two-thirds loam and one-third well-decayed leaf-mould, and placed in some sheltered spot, and the whole covered over to the height of eight or nine inches with cocoa-nut fibre. I would here remark that, although cocoa-nut fibre is not a good material for tulips to be planted in, it is most excellent for the purpose of covering them. The varieties which flowered best here were Rex Rubrorum, double crimson-scarlet, a most noble flower; La Candeur, double white; Tournesol, double yellow and red, a particularly showy variety; Couronne Purple, semi-double blood red; Belle Alliance, or Waterloo, single scarlet; Yellow Prince, single pure yellow; Pottebakker, single pure white; Royal Standard, single white, striped rosy crimson; Duchesse de Parma, single crimson and orange; Morgen Zon, single fiery scarlet. I have tried some sixty or seventy varieties, all more or less beautiful, but those enumerated

are, with me, the best for bedding and massing purposes, as they all flower nearly at one time, and the smoky atmosphere seems to have but little effect upon them. I find it necessary to have fresh imported roots every year, as although the same roots will flower the second year, they cannot be depended upon to produce an effect in conspicuous beds; but as they are too good to throw away, I plant them in a less important part of the border, where, with generous treatment, they flower tolearably well, but not nearly so fine, and much later than they did the first season.

The Turk's Cap and Orange Lilies always bloomed freely here until the chry-

The Turk's Cap and Orange Lilies always bloomed freely here until the chrysanthemums were grown so extensively, causing the damp in November to remain in the soil, and rot the lily roots. The Narcissus also does well when planted in the

common border earth.

The bulbs I have mentioned, with the addition of some of the hardiest and earliest flowering annuals, and such hardy plants as the white Arabis, yellow Alyssum, purple Aubrietia, Cheiranthus Alpinus, blue Forget-me-not, wallflowers, etc., all wonderfully hardy and ridiculously cheap, will make any town garden, however confined the locality, bright and gay during spring and early summer, when they may be followed by intermediate stocks, geraniums, calceolarias, lobelias, and asters, for the summer and autumn, closing the season with chrysanthemums, both large-flowered and pompon varieties, carrying us to nearly Christmas; and thus we have, by a little management and a small outlay, a floral display of nearly or quite ten months' duration.

I must observe, in ecnclusion, the above remarks apply essentially to squares and other open spots in large towns. Gardeners in more favoured localities have of course a much wider range of subjects to choose from, and will, perhaps, look with contempt on some of the plants herein mentioned; but they must bear in mind that what will grow freely as the commonest weeds in the pure and bracing air of the country, here require an amount of management and care that

would not be believed until the attempt be made to grow them.

incer-post for purchasers of plants. seeds. etc.

A SELECTION OF THE BEST HYACINTHS FOR CONSERVATORY AND GREENHOUSE DECORATION.

DOUBLE BLUE.

Blocksberg.—Fine large bells, one of the best.

Garrick.—Compact and very handsome.

Kroon Van Indian.—Very dark, fine spike.

Laurens Koster.—This proved the finest I grew last year.

Bouquet Royale.—Large bells and fine spike. Sir Co/in Campbell.—Immense bells, extra fine spike.

Madame Marmont.—A distinct and excellent variety. Prince Frederick.—Of fine form and handsome spike.

SINGLE BLUE.

Abd-el-Kader.—Very dark, extra fine spike.
Charles Dickens.—Beautiful purple shade, splendid truss.
Grand Lilas.—Of good form and spike.
Prince Albert.—Well known as an excellent kind.
Mimosa.—Very dark and splendid truss.
Regulus.—Deep shaded, fine bells.

Grand Videt'e.—Fine spike, very beautiful. La Plus Noir.—Very dark.
Uncle Tom.—Beautiful violet shade, fine truss.
Emilius.—Fine for early forcing.

DOUBLE RED.

Duke of Wellington.—Pale red, of fine form. Waterloo.—A popular useful kind. Eclipse.—A superb truss.
Frederick the Great.—Exceedingly large, one of the best. Grootvoorst.—Useful, on account of its delicate bells. Jenny Lind.—Fine double, and very beautiful. Queek Victoria.—Beautiful large truss.
Princess Royal.—Very compact, extra fine. Sir Thomas Grey.—Of good form and spike.

SINGLE RED.

Amy.—Large and very fine.

Amphion.—A superb flower, with large, well-formed bells.

Circe.—Distinct, with a bright salmon shade.

Madame Hodgson.—Small bells, but exquisitely formed.

Howard.—A new and beautiful kind.

Fire Ball.—Very bright, large bells and spike.

Gigantea.—Immense spike, when not forced too early.

Sultan's Favourite.—Distinct and good.

Duchess of Richmond.—Fine large truss.

DOUBLE WHITE.

Jenny Lind.—Very pure white, first-rate spike.
Don Gratuit.—A bold and handsome truss.
Prince of Waterloo.—One of the best, both in form and size of truss.
Heroine.—A lovely white, of exquisite shape and strength.
Anna Maria.—A useful old kind, with moderate bells.
A la Mode.—Fine large spike.
Ne Plus Ultra.—A splendid flower.
Princess Alice.—A magnificent new kind.
Sceptre d'Or.—Beautifully scented.

SINGLE WHITE.

Hannah More.—Fine well-formed bells and spike.
Queen of the Netherlands.—Immense spike and bells.
Miss Nightingale.—Scarce, but a magnificent flower.
Cleopatra.—Fine and very beautiful.
Emicus.—A superb truss, fine for early forcing.
Hercules.—Well named, an extra fine spike and bells.
Queen Victoria.—Exquisitely-formed truss.
Mont Blanc.—Pure white, magnificently-formed spike and bells.
Voltaire.—Long and handsome truss.
Seraphine.—Good truss, with large bells.
Grand Vainqueur.—Beautiful pure white.

Of yellow kinds I shall only name a few single varieties, as, generally speaking, they are not sufficiently distinct in colour to be worthy of a separate notice.

SINGLE YELLOW.

Alida Jacobea.—The most attractive of any in its class.

Anna Carolina.—A good yellow, with large bells.

Fleur d'Or.—Good spike.

Heroine.—Very fine spike.

King of Holland.—Good and distinct.

J. C. C.

NEW PLANTS.



SCHIDIGERA, Splintered-leaved American Aloe (Bot. Mag., t. 5641) .- Amaryllideæ. This noble aloe, one of the most distinct in leafage of any in cultivation, flowered in the nursery of Mr. B. S. Williams, Holloway, in January last. The scape is erect, about six feet high, the lower part covered with red bracts. The spike cylindrical,

many-flowered, the flowers green, with yellow anthers.



AGAVE SCHIDIGERA.

DALECHAMPIA ROEZLIANA, Roezl's Dalechampia (Bot. Mag., t. 5640).-Euphorbiaceæ. A magnificent stove shrub, a fit companion to the glorious Bougainvillea. It is a native of Vera Cruz, and was first introduced to Europe by Messrs. Van Houtte, of Ghent. Leaves six inches long, dark shining green; involucral bracts two and a half inches long, of a brilliant rose colour, the flowers, male and female together, in clusters.

Colax Jugosus, Furrow-lipped Colax (Bot. Mag., t. 5661).—Orchideæ. A native of Brazil, lately flowered in the collection of Mr. Rucker, of Wandsworth. The leaves are six to nine inches long, the flowers two inches in diameter, sepals pale cream colour, petals white, overlaid with black purple

bands; lip marked like the petals.

DRACENA SURCULOSA, var. maculata, Long-shooting Dracana; spotted-leaved variety (Bot. Mag., t. 5662).-Asparagineæ. A shrub six to eight feet high, leaves in subopposite pairs, four to six inches long, oblong lanceolate, bright green, with round yellowish

spots.

Begonia Vertchii, Veitch's Begonia (Bot. Mag., t. 5663).—Begoniaceæ. This is probably the finest Begonia known; at all events, it is certain to prove one of the most useful, and will soon become a general favour-It has the habit of Saxifraga ciliata, the leaves orbicular, thick in texture, and a fine dark green colour. The flower of great size and brilliant vermilion red. It is nearly hardy, having withstood a temperature of 25° Fahrenheit in Messrs. Veitch's nursery last winter.

EPIDENDRUM BRASSAVOLÆ, Brassavola-

Orchideæ. A distinct and splendid species, discovered by the late Mr. Skinner in Guatemala. It is rearest allied to E. prismatocarpum, but is much handsomer. The raceme sometimes attains a height of from two to three feet, the flowers are citron yellow, with prominent lip, the lower half of which is cream-coloured, the anterior half bright purple.

ERODIUM MACRADENIUM, Spotted-flowered Stork's-bill (Bot. Mag., t. 5665) .-Geraniaceæ. A scarce species from the Pyrenees. The leaves are elegantly cut

into pinnate segments, the flowers are rosy, with rich veins and spots.

GRIFFINIA BLUMENAVIA, Dr. Blumenau's Griffinia (Bot. Mag., t. 5666). A beautiful tropical bulbous plant, with persistent leaves and amaryllis-like flowers, which are white with rosy stripes.

Aristolochia tricaudata, Three-tailed Aristolochia (L'Illust. Hort., t. 522).

—A curious and handsome species, native of Chiapas. The leaves are ovate lanceolate, the flowers large, dark brown, terminating in three long tails.

ACER (POLYMORPHUM) PALMATUM, FOL. DISSECTIS PENNATIFIDIS ROSZO-PICTIS Palmate-maple, with rosy-tinted dissected leaves (L'Illust. Hort. t. 523).—
—Aceraceæ. In spite of its elongated name this is a beautiful

hardy tree, with finely-cut leaves, which vary from purplish red to

pale rose colour.

MILTONIA ROSEA, Rosy-flowered Miltonia (L'Illust. Hort. t. 524).—Orchideæ. A splendid species; the sepals and petals are narrow, and of a pale rosy cream colour, the lip broad and deltoid, ground colour rosy cream, overlaid with heavy stripes of puce colour.

Dowiana, Dow's CATTLEYA Cattleya (L'Illust. Hort. t. 525). -Orchidaceæ. A good figure of

this magnificent species.

ACER (POLYMORPHUM) PALMA-TUM SANGUINEUM, Palmate-maple with blood-red leaves (L'Illust. Hort. t. 526) .- A fine hardy tree, the leaves varying in colour from a



blood red to a deep bronzy brown.

CAMELLIA CARLOTTA POLOSO (L'Illust. Hort., t. 527).—An Italian seedling, the flower of average size, imbricated petals, rather pointed, colour rosy red, with stripe of blush down the centre of each petal.

WINTER TREATMENT OF KITCHEN GARDENS.

N the early part of winter we often have a good deal of open or mild weather; and it is a matter of some consequence to know how the gardener can be employed to the best advantage.

As I observe that, comparatively, few gardeners here appear to place sufficient importance on the value of exposing the soil, as much as possible, to the winter's frost, I wish to be allowed to make a few remarks upon the

Ridging up the surface of every unoccupied spot, in a kitchen garden, is one of the things most of all insisted upon. Experience has demonstrated, hundreds of times, that it mellows the soil, destroys the eggs of insects, and drives out any acids or excrementitious matters that exist in old soils to the detriment of the succession of annual crops. Indeed, many old gardens that are quite unproductive, if left alone in this particular, are kept in capital condition by constantly attending to it.

The ridges ought to be thrown up a foot and a half high, in the direction of the slope of the ground, so that the water will run off, and not stand in the trenches. They may be as close together as they can be made, bearing in mind to keep the tops of the ridges eighteen inches high. I consider it a great advantage to turn up a little of the subsoil—say a couple of inches each season—at the time of ridging. This brings a little fresh loam to the surface; and after being acted upon by the atmosphere, it mixes very kindly with the top-soil, and helps much to keep up the fertility of the garden.

If you have fresh stable manure at hand, it is well to give the top-spit a good coat, and mix it through the soil when ridging up. It will be found to put the soil in good condition for spring crops of vegetables; and it is by far the best mode of

applying coarse manure to the kitchen garden.

GARDEN GUIDE FOR OCTOBER.

Kitchen Garden .- Vacant plots cannot be too soon trenched over and laid up in ridges to remain the winter. In too many cases this important work is delayed until the winter is well nigh gone, and but small benefit is derived from it. Do it now, and the value of the work will be ten times that of the same work done in spring. August sown cabbage may be planted out as opportunities occur; lettuces may be planted in warm borders; asparagus beds want a slight forking over, and a coat of manure; rhubarb may be planted.

Flower Garden.-The work of this month consists chiefly in getting tender plants housed for the winter, and in giving chrysanthemums a final touch to prepare them for flowering. Look after bulbs of all kinds, and get them potted and

planted as opportunities offer.

Fruit Garden .-- Any kinds of fruit-trees may be planted now. Where the soil

is at all poor let the ground be well dug, and liberally manured.

Greenhouse and Stove.—Give every needful attention to winter flowering subjects; remove all shading (should any remain), see that furnaces and flues are right, by making a fire the first damp cold day. House all tender subjects, and put everything in order.

* * Past issues of the Floral World contain copious calendars of operations. and the GARDEN ORACLE has a complete and concise calendar, adapted for reference. For these reasons, the "Garden Guide" will be on a contracted scale this year.

TO CORRESPONDENTS.

Rose in a Tub. -A. B., Bath. -A tub 16 inches deep and 12 inches wide, could be made, in the hands of a practical cultivator, sufficient for the growth of a climbing rose to cover an arch. The best way to manage it would be to use a mixture of one-third fat manure and two-thirds good loam, and in planting to ram the soil in firmly. A rose on its own roots should be preferred. Plenty of water must be given from the end of April till the end of July, and in November the rose should be shaken out and replanted in the same tub with fresh soil immediately. At the same time the roots and branches should be moderately cut back. It would be far better, however, if a square yard extent of good soil can be afforded for the purpose.

HAYS'S CONSTANT STOVE.—Constant Subscriber.—This is undoubtedly the best contrivance known for heating small plant-houses. It is cheap and elegant; it requires no chimney (yet it is made so that one may be attached if desirable), the fuel used is a sweet, cleanly, and comparatively cheap material; the very ashes are useful in the garden, and it occupies scarcely so much room as a sack of potatoes stood on end. We do not know if there is an agent in Liverpool. It would be well

to write to Mr. Baker, Harp Lane, Tower Street, London, E.C.

Mr. Jeeves cannot expect us to advertise his business for him. We bestowed far

too much attention on his predecessor.

N. E. D .- Your charming fern is Nothochlana flavens. It is evergreen, decidedly tender, and requiring extra care in winter. Excess of moisture, or absolute want of moisture, will soon prove the death of it.

Newark.—Your plant is Alströmeria psittacina.

VINES IN GROUND VINERY.—H. C. P.—Your grapes appear to be quite spoiled by combined attacks of mildew and red spider. You have, no doubt, failed to afford sufficient atmospheric moisture during hot weather to sustain the increased evaporation from the leaves. This brought red spider; then the temperature fell very low, and the vines were suddenly checked after having enjoyed for a short time a stove heat, and then mildew appeared. Such appears to us to be the rationale of the disaster. Our advice is, cut off all the bunches and destroy them, and give the young wood the best chance possible to ripen off.

Lilium eximium.—Carmarthen.—Your non-success with this lily is owing to your doing too much for it. Treat the plant as lardiest of the hardy, plant it six inches deep in a good, deep, loamy border, and leave it to take care of itself, and you will see it grow freely and flower superbly. This time last year we had some articles on lilies, in which just such advice was offered in regard to the plant now under consideration. Your phloxes have probably exhausted all the goodness out of the soil, and want transplanting to renew their vigour. Leave them alone till April next, then take them up, part them into small pieces, and plant them in fresh spots that have been well dug and liberally manured. Your soil is probably too light for phloxes; dig in a little clay as well as manure for them, if you can get it.

Amateur.—Your fern is Pteris scaberula. We do not think Viola cornuta could be flowered well in winter in the conservatory, but it might happen to do very

well that way. Try it.

A.B.—The insect is a mite, and you will find its history in any good book in which mites are treated of. Charlock, of which you enclose a bit, is the common 'yellow weed' of the turnip fields, the "wild mustard" of village botanists, Sinapis arvensis of the books. Cerasus mahaleb may be grown from cuttings of ripe wood of the previous year.

Loxley, Warwick.—The grass is Lolium temulentum, the only British grass

that produces unwholesome grain.

"Infelix Lolium, et sterilis dominantur avenæ."-VIRGIL.

CATALOGUES.—Lists of Bulbs and other flower-roots have been received from Messrs. Sutton & Sons, Reading; Messrs. Carter & Co., of High Holborn; Mr. John Fraser, of Lea Bridge Road; Mr. B. S. Williams, of Holloway; Messrs. Cutbush and Son, of Highgate; Messrs. E. G. Henderson & Son, St. John's Wood; Messrs. Barr & Sugden, King Street, Covent Garden; and Messrs. Low & Co., Clapton. Lists of Roses and Fruit Trees have been received from Messrs. Lane & Son, Berkhampstead; Messrs. Paul & Son, Cheshunt; Mr. Tanton, Epsom; Mr. Fraser, Lea Bridge Road; Mr B. S. Williams, Holloway; Messrs. Veitch & Son, Chelsea; and Mr. Chater, Cambridge.

Books Received.—Thomson's "Cultivation of the Vine," 5th Edition (Blackwood), claims the respectful attention of every aspirant for success in grape culture. It is the book on the subject; it treats of every point likely to arise in any department, and is everywhere as plain and practical as the author, who is one of the finest grape-growers in the country. "Studies, Biographical and Critical," by Dr. Ross (Simpkin), is a book for thoughtful readers, who can enjoy pure criticism and scholarly enunciation of views founded on long observation and earnest study. One of the best "Studies" in the book is one on the mad characters in Shakespeare.

There are also elaborate studies of Dr. Johnson and Sir Walter Raleigh.

Shady Border.—Z.—Many good things will suit your shaded border. All the members of the genera Aconitum, Delphinium, and Helianthus will thrive in it. The common Christmas Rose will do well if the soil is good. Hollyhocks the same, but you must not have expensive kinds. Papaver bracteatum and armeniacum will be quite at home there, and all the Phloxes are available if the situation is airy. Polyanthuses and Primroses plant plentifully. Double Daisies will do if taken up and replanted every September. A fine display may be made in autumu by turning out a number of Fuchsias. Lastly, British ferns will enjoy the shade, and you may, if you like, appropriate the border wholly to them. Thus, you see, a border need not be shabby for lack of sun.

THE FLORAL WORLD

AND

GARDEN GUIDE.

NOVEMBER, 1867.

THE PICTURESQUE IN GARDEN DESIGNS.

N the practical work of laying out small gardens, the common difficulty is to give them a distinctive character,

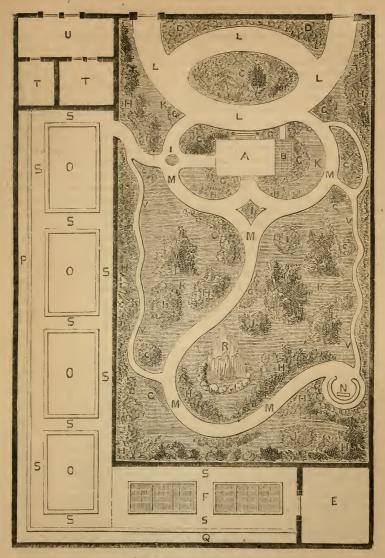
so many plots in a villa district being nearly alike. When called in to advise on laying out a large place, I expect and experience far less trouble than in dealing with a small one. Where there is a fine property to begin with, there are usually certain constitutional features which the landscapist must work up to, so that his design shall be really an adornment of nature, making the utmost of every good point ready to his hand, and developing rather than obliterating natural scenes. On a property of any extent there will, perhaps, be a water-course in the low levels, and some rough acclivities on the higher grounds. By judicious dressing and proper earthworks the hills may be enriched, the prospect widened and beautified, and the water-course made a pleasing feature to light up a varied scene. There will, perhaps, be found many large trees in the place, which the wise director will spare for the sake of immediate effect, and all other trees brought in will be planted so as to give fuller effect to the trees already on the ground. It matters not how much needs to be destroyed or altered, a large expanse of ground will always afford features of its own, which should be made the most of; but a small property usually needs to be dealt with as we deal with a sheet of blank paper when a picture is demanded. Even in this case, however, the surroundings must be taken serious account of. A poor view may be improved by judicious planting of the foreground, and a careful disposition of trees and clumps will make the most flat and commonplace spot rich and various, the apparent extent will be enlarged, and a good selection of subjects will afford to the proprietor agreeable changes of colour and effects in every season of the year. I propose to select from my portfolio of plans, from time to time, such as appear likely to be useful to readers of the FLORAL WORLD, more especially those who are building residences, and laying out gardens for themselves; and these plans will be such as I have VOL. II .- NO. XI.

carried out myself when employed as adviser in these matters, preferment being given for the particular purpose to such as are applicable to gardens of comparatively small extent, for the small gardens are generally laid out by their owners, and ready-made designs are often readily adaptable to them, but large places cannot so well be treated from plans otherwise than such as have been

designed expressly for them.

The subjoined is a rather rough engraving of a very useful scheme for a garden for a suburban villa. It is such a one as will serve, by the disposition of the clumps, to exclude noise, dust, and disagreeable objects, and is essentially rural in character. It is in the English style, which is the best style for this country, and especially for those who love gardens, and are not possessed of large fortunes to make for themselves princely places. The sketch is on a scale of fifty feet to one inch. The house is set back from a public road, or from farm fields, and is approached by a good drive, which always confers upon a respectable edifice an air of dignity and comfort. The view from the windows every way is pleasing; there is an ample extent of grass turf, numerous clumps of trees and shrubs, and abundant scope for the cultivation of roses, 'rhododendrons, herbaceous plants, and for the display of specimens of particularly choice character, whether coniferous trees or otherwise. pleasure-ground is enclosed with walls or hedges, according to circumstances. If walls are used, a greater breadth of choice fruits may be planted; but, as a rule, low closely-clipped hedgerows would be preferable, especially to separate the frame-ground and kitchengarden from the pleasance. There is a good main walk for ordinary purposes, and narrow rear walks for the use of the gardeners, and for the proprietor when desirous of exploring every part of the property. Such a plot would usually be cut up more minutely with walks, but our rule is to make as few walks as possible, and, as a rule, to dispose them so that, while traversing any one, no other can be seen.

This garden is somewhat luxurious in character, and is better fitted for a person who would prefer forced fruits and vegetables, a few pines, some good grapes, and choice greenhouse plants, in addition to a good lawn and its proper accessories, than for one who would look to the garden for abundant supplies of ordinary vegetables and ample stores of winter roots. Nevertheless, the compartments marked O, which are best adapted for a series of pits for pines, flowers, and forced vegetables, might be made available as ordinary vegetable plots, or to be more choice in their appropriation, they may serve well for strawberries, bush fruits, and other more select subjects. Supposing the ground to fall from the house towards the lower boundary, the position of the fountain is such that a good head of water near or about the residence would suffice for it, and the expense attending it would be inconsiderable. But should the ground rise from the house (a most undesirable condition) the fountain would be ill-placed, and might, perhaps, be advantageously dispensed with. In the particular case for which this plan was drawn, there was a good head of water at the house, and after the



SCALE 50 FEET TO 1 INCH.

- A, Dwelling-house.
- B, Conservatory. C, Clump of shrubs to divide the
- D, Shrubbery skirting the road, or other boundary.
- E, Sheds and rubbish.

- F, Frames.
 G, Clumps for rhododendrons, etc.
 H. Plantations of mixed trees and shrubs.
- I, Beds of flowers.
- J, Beds of choice flowers.

- K, Grass turf.
- L, Carriage drive, 14 feet. M, Main garden walk, 9 feet. N, Rustis arbour.

- P, R, Kustis and Solit.
 O, Compartments 36 feet by 24 feet each.
 P, Q, Borders for wall-trees.
 R, Fountain.
 S, Walk round frame ground and fruit garden. T, Plant-houses.
- U, Vinery, 50 feet by 16 feet. V, Rear walks.

first cost for one of Ransome's rustic fountains (some £30), and the necessary service of pipes, the cost of water supply was quite a trifling matter. The vinery is drawn as it was built, for in this case the frontage was on a private road, in the midst of a large property, and the owner wished to have an entrance from the road. But it would be easy enough to enter the vinery and the plant-houses from the side next the dwelling, and other details might be altered in like manner, and yet the plan might prove substantially useful.

It is a common thing to be called in at this time of year to lay out and plant a new place. But the planting is rarely accomplished until at least a year has elapsed, for the season is usually gone ere the drains and walks are made, and while the builders are about it is absurd to plant anything valuable. This in defence of landscape gardeners generally. People who expect a man to begin in October, and finish a place before Christmas, having, perhaps, to convert a wet meadow into a garden, should bear in mind that if the foundations are not sound, no garden can be a credit to the planter or a pleasure to the proprietor. Lay a good foundation first, and lose a season rather than have trees and shrubs stuck into undrained, untrenched soil, where they are likely to perish in a few years, or if they live will never be a credit to any one concerned in their existence.

S. H.

HOME-GROWN BRIERS FOR BUDDING.

In the "Rose Book," our Editor has shown how to propagate roses from cuttings at all seasons, and how to raise briers from seeds and suckers. Acting on the advice of the "Rose Book," I have become expert in propagating roses, and now I propose to add my chapter on the subject. I have great difficulty in obtaining briers, as the dog rose is scarce in my district. I have tried raising from seed, which answers very well, but you are not sure that the seed will be gathered from the right sort of brier, and, therefore, you get a rather mixed lot, some being bad for budding. But I solved the problem by putting in cuttings of briers, exactly as the "Rose Book" recommends for roses, and now I can be independent of the hedgerows. This is my contribution. Would that I could do more in acknowledgment of the service you have rendered me. W. R. T.

FRUIT PROSPECTS.

AVING contributed our share to the active discussions on fruit culture, which have occupied so largely the attention of the horticultural public, it would be impolitic, and, perhaps, unjust, to allow the present phase of the discussion to pass by without offering our readers some remarks of a practical nature likely to benefit

our readers some remarks of a practical nature likely to benefit them. At this time of year a certain number of persons are engaged in the purchase and planting of fruit-trees, and they are of necessity interested in the respective merits of different varieties of fruits, and different methods of growing them. We have lately given our opinion on the proposal to introduce the cordon system of training into English gardens, and on the respective merits of the extension and restriction systems of grape-vine culture. We now address ourselves to some cognate topics, hoping earnestly that what

we have to say may prove truthful and useful.

Let us first speak of orchard-houses. These do not increase at the rate they did formerly, and there are many sound, practical men still who are sceptical as to their value. The fact is, the judicious employment of glass, whether with or without the aid of artificial heat, is of immense value in the cultivation of choice fruits in this uncertain clime; but orchard-houses have been much abused. and they are still in a great measure misunderstood. The proper use of an orchard-house is for such fruits as cannot be grown with certainty in the open air of the same district, or to hasten the maturity of fruits that do thrive in the open air of the same district, and of which earlier supplies are required than can be obtained by trusting to the natural course of the seasons. When some of the best varieties of peaches, nectarines, and plums are planted out in a roomy orchard-house, we say that glass is well employed and will afford an ample return on all the money expended in the construction. But when we find a similar structure occupied with little apple, pear, and cherry-trees, in pots, we regard the house and the trees as toys, and as no one expects toys to pay, so we never ask if the fruits obtained from the potted trees are in quantity and quality any way commensurate to the cost of obtaining them. Pot culture may be a profitable system in some cases, but as a rule it is a delusion. In January, 1862, we directed the attention of our readers to the advantages to be derived from the culture of fruit under glass, by means of trees planted out, and we have never forgotten that potted trees may be so well managed as to be annually smothered with good fruit, though the value of such fruit can never be a full equivalent for the time bestowed in its production. Where an amateur pursues this system of fruit-culture as an amusement, the result is all profit, and we have nothing more to say! But if we are asked to speak of the most profitable use of glass for fruit production, we must advocate the construction of large, light houses with inside borders, and the trees planted in them as in the oldfashioned peach-houses. Having provided glass, the cultivator

should devote his energies only to the production of fruits worth extra pains and labour, as, for example, the Stanwick Nectarine, the Walburton Admirable Peach, the tender Melon and Mother Apples, the Blue Imperatrice Plum. Glass provides a better climate than a bare wall, and it is a waste of glass to employ it solely for such things as the bare wall will produce in perfection. As to the construction of orchard-houses, we are no advocates for ugly sheds and hideous makeshifts. At page 249 of our fourth volume, we asked "How do these rough shed-like houses serve their intended purposes?" and the answer was at once given, "Very inefficiently. They are as bad for use as they are ugly in appearance." Orchard-houses require to be well built, and the larger they are the better, consistently, of course, with the space and means at command, and

the particular purposes to which they are to be devoted.

Miniature trees have pretty well had their day, and there is a strong reaction in favour of free stocks in preference to such as have a dwarfing tendency. On some poor thin soils, the quince, the paradise, and the Mahaleb stocks are of the utmost value for the production of pears, apples, and cherries; but on all good loams and clays, on all fertile soils, trees grafted respectively on the pear, the crab, and the wild cherry are far preferable, for though they do not become fruitful so early, they make far better and more fruitful trees in the end, and as to early fruitfulness, that may be promoted with free stocks by judicious annual or biennial lifting and root pruning. This may sound very heretical doctrine, but we are speaking from experience and observation, and we are satisfied that the dwarfing stocks have had far too much praise bestowed upon them. Suppose that from a bush three feet high we obtain a couple of dozen fruits, and from a tree five feet high none at all. The first tree is in a condition beyond which it can scarcely improve; the second is actually improving, and in two or three years will give as many bushels as the other will of single fruits. We cheerfully and openly admit the service that dwarfing stocks have rendered. For very small collections, where variety is of more consequence than a bulk of any one sort, and the cultivator desires a maximum of amusement from a minimum of garden ground, these miniature trees are admirable. But we repeat, there has been too much said in praise of them, and we must keep to the free stocks if we want lasting and productive trees.

This brings us to the subject of pinching. Let us have before us an imaginary apple-tree. It is first of all worked on a dwarfing stock, to check its growth; it is next stuck in a pot, further to check its growth; it is next pinched periodically all the growing season to check its growth, and in the end where is the apple-tree? It has become a miserable little shrub, producing nothing but green-fly or red spider; but yonder is another tree of the same sort, on a free stock, growing in its own way, and producing annually many bushels of fine fruit. Pinching is the companion delusion to pot culture. It won't do! There are occasions when pinching may be practised to advantage; but in every such case it must be discontinued early, or the trees will be full of soft shoots when the

frosts of autumn overtake them. As a rule, plantations of trees kept on the pinching system have become barren. But after being left alone a few years, they have again become abundantly fruitful. Our own collection of choice apples and pears comprises some six hundred bushes and pyramids. These have been subjected to various experiments during ten years past, and the result is that we find the pinching system occasions too much work, and is ill adapted to the climate. It is impossible to form neat pyramids or neat trees of any kind without summer pruning and pinching; but people have been told to pinch, pinch, pinch, to such an extent that they have simply laboured to make their fruit gardens unproductive, and have succeeded perfectly. How rarely do we find big trees barren, and how rarely are miniature trees fruitful. Simple methods of procedure are, therefore, best to be relied upon, and there need be no mysterious uncertainties in the production of good English fruits. S. H.

NOTES ON NEW BEDDING PLANTS.

URING the past season a number of new bedding plants have been tried at Stoke Newington, and amongst them a few have proved eminently useful.

Nosegay Geraniums.—Lady Constance Grosvenor

is a finer variety than even Stella or Cybister. The leaf is neat, with very dark zone, the flowers brilliant lively crimson, in very large trusses. Crimson Nosegay is distinct and fine, and must be in the possession of all who value such plants at the earliest possible moment. In habit dwarf and compact, branching freely, producing abundance of flowers, the colours intense deep shaded crimson. This puts out of competition such varieties as Glowworm, Magenta, and others of the shaded crimson class. One of its best qualities is that it seldom produces a seed. Christine Nosegay and Pink Stella are two beauties with huge nosegay trusses of bright rose pink flowers. International, a bright scarlet, was not so good as any of the foregoing, but it was good nevertheless, and as our plants were very small when put out, we expect far better behaviour next year, and so class this with the varieties we consider that amateurs may purchase with safety.

Varieties planted in beds, we believe the day is not far distant when the tricolors will be thought little of for bedding. Looked down upon, a bed of Mrs. Pollock is one of the most delightful spectacles possible in the way of garden colouring, but seen from a distance, it has a grey, sombre tone, by no means satisfactory. For distant effect, the most brilliant of all the yellow-leaved varieties is one in the collection of Messrs. F. and A. Smith, of Dulwich, the name of which is Aureum. This is properly a bronze zonal, but the zone is scarcely conspicuous, and the prevailing yellow hue of the leaf is so brilliant, yet of so soft a tone of yellow, that we may search far and

wide for anything to equal it. Another good quality of this variety is the colour of the flowers, for in place of the ordinary scarlet, which ill agrees with a yellow ground, the flowers of this variety are of a soft, pleasing cerise colour, and when a bed of this is freely sprinkled with flowers, it has a most luxurious appearance. Goldfinch and Canary have been good this season, but as they are not new, we must not put their names in italics. Of the Cloth of Gold, Gold Leaf, and Golden Fleece series, the last-named has proved the best everywhere. In the class of new silver variegated geraniums, the only new one that has made any important figure here is one sent by Mr. J. J. Chater, of Cambridge, and the name of which we have unfortunately lost. The next best to Chater's is the old Daybreak, and, all things considered, that is probably the best variety of the kind in cultivation.

Fuchsia, Golden Fleece.—This is one of the many good things Messrs. E. G. Henderson offer this season. It is one of the most brilliant bedding plants ever seen, the leaves being of a shining gold yellow colour, literally producing the effect of burnished gold. Although far less beautiful as a pot plant than when seen glowing in the sunshine in the parterre, it is by no means unattractive in the greenhouse, in which respect it differs from the majority of yellow-leaved bedding plants, which are usually very sickly when seen anywhere but in their places out of doors. This Golden Fleece surpasses all the other variegated-leaved fuchsias, both in colour of leaf,

flower, and habit of growth.

Pyrethrum, Golden Feather.—This has been recommended in these pages, and we are quite confident we need not now be ashamed of our recommendation. It has, in fact, proved eminently serviceable, and is a favourite everywhere. Having several plants in odd places, we allowed some of them to flower, the proper way to deal with the plant being to remove the flowers. It appeared highly probable that this plant would serve two purposes, and might be worked into one of those "chameleon" borders that Mr. Howlett used to write about so instructively. Suppose, then, we plant it where its yellow leaves will be appropriate from the beginning of May to the middle of July, and then supposing other features of the scheme have changed, and we no longer want yellow leaves alone, but white flowers also. In such a case, here is a plant to our hands. The flowers are small and have no particular merit; but there are plenty of them, and picking them off is a troublesome job.

Lobelia, Indigo Blue, is one of the very best of the blue bedding plants. No one should now grow seedling lobelias; the very best are far inferior to the good named varieties that are available. This one is of a rich deep blue colour, with clear white eye. Pumila elegans is another good lobelia, very much used this season at the Crystal Palace and Battersea Park. It is extremely dwarf in habit, and is quite smothered with blue flowers all the summer. White Queen is almost a pure white, and good, but rather too robust in habit. On the other hand, Miss Murphy is as great a failure as Snowflake, neither of them, as bedding plants, worth a penny per

thousand.

Pansy, Imperial Blue.—This is a most valuable addition to the now rich list of early-flowering hardy plants adapted for beds. It grows freely and flowers profusely, the colour of the flower a fine tone of blue, with dark velvet blotches. A mass of it has a very chaste appearance, and it begins to flower in April. Those who are familiar with the best bedding pansies, will understand how much we value this, when we say it is an improvement on Trentham Blue.

Viola cornuta.—There are two varieties in the trade. One is called Mauve Queen, and is the one sent out by Mr. Wills, of Huntroyde; the other is named Purple Queen, and was ushered into note by Mr. Bennett, of Osberton. When both of them prosper, they are of equal value, the first being of a light slaty purple colour, the other of an indigo tone of purple. But in the majority of cases, Bennett's variety fails, and Wills's succeeds. Therefore any of our readers who determine on employing Viola cornuta largely are advised to put their chief trust in Mauve Queen as the safest of the two. A third variety is now added, and a very pretty one it is. This is called Princess of Wales; the top petals are rich lavender, the lower ones creamy white. It is a first-rate autumnal blooming plant, and being quite hardy, continues in bloom far into November.

PEACHES AND NECTARINES WITHOUT WALLS OR GLASS.

AVING so frequently advocated the erection of suitable houses, or of covering walls with glass, for the cultivation of peaches and nectarines, it is with peculiar pleasure I offer to the readers of the Floral World a few words on the cultivation of these fruits in common

garden borders; in fact, as bushes and pyramids in the open ground, just as apples and pears are grown everywhere. I am not dreaming, or inventing; I wish to encourage experiment, but I wish also that my recommendations may be received with caution. First, then, let me relate a few facts. Every autumn for six years past I have received from Mr. Josiah Illman, nurseryman, of Strood, near Rochester, Kent, a basketful of ripe peaches, nectarines, and apricots, gathered from trees growing in an open quarter of his nursery. Generally speaking, these fruits have been good, both in size and colour, but not equal to fruits of the same kinds from walls and orchard-houses. Please keep it in remembrance that I have not pronounced these to be the finest peaches and nectarines I ever tasted. Nevertheless, they have generally been good, and some few kinds, such as Noblesse peach and Hunt's Tawny and Red Roman nectarines, have been on several occasions first-rate in every respect. In 1863, 1864, and 1865, the samples were fine; in 1866

they were rather poor; in 1867 they were poor. The seasons have a more marked effect on tender fruits grown without protection than on those that are more favourably situated. In the autumn of 1865 I went to Strood to see the trees, and I was most agreeably surprised, for in every respect they surpassed my expectations. I found a plantation of large bushes averaging six feet high, and six feet through, in perfect health, abundantly laden with fine fruit, which was being gathered for market, and, I was told, realized remunerative prices. I expected to find some peculiarly favourable circumstances, such as the protection of an old scarp of chalk on the side of an old quarry, or some other of those accidental aids to particular spots that here and there serve to create special climates. I found nothing of the sort. The trees were in an open field, fully exposed to all the winds of heaven, and I was assured that Strood, in Kent, enjoys no immunity from the severities of winter and spring, which in other districts render walls and houses necessary to the cultivator of the peach. The soil is a good sandy loam, resting on chalk, a dry soil, no doubt, but a deep sound soil, on which wheat or cabbage would grow with vigour.

It may be asked how it came about that Mr. Illman should venture to make such a plantation of peaches, nectarines, and apricots? The answer is, that in reality he did not venture. He did as other nurserymen do. When the season was over, and he had a surplus stock of potted trees, he, to save the trouble incident to the keeping of such trees in pots all the summer, turned them out, with the intention of potting them again in the following autumn to be ready for sale for orchard-houses. But the trees grew; they were left where they were another season, and they produced a lot of fruit. Thus encouraged, he planted out a few more, and thus it became a system at Strood to grow these fruits in

this way.

Whether the climate of the country has changed or not I have no very decided opinion. I am for the present reluctant to believe that this climate has changed in any material respect during a thousand years past, but if it has I must suppose it to have been for the better. The fact is, I am not acquainted with sufficient evidence either way to speak with any decision on the subject. But I know, everybody knows, that this is not the first plantation of peaches and apricots ever made with profit to its owner. The fact is, standard peaches and apricots were at one time common; they are now scarce. Ten years ago I saw some huge standard apricot trees that bore fruit abundantly in a garden at Leatherhead, in Surrey. Messrs. Lee, of Hammersmith nurseries, exhibited the first fruits of their "Royal Vineyard" peach at the great fruit show at Edinburgh, in 1865, accompanied with a statement that the original tree was a standard that had never been protected. The first tree of the Moor Park Apricot was a standard at Moor Park. A crowd of examples might be collected in evidence of the former existence of many such trees. Their present scarcity is, no doubt, owing to the cheapness of glass of late years, and its general adoption in the culture of choice fruits, because of the certainty of production

thereby, and the uncertainty of production without its aid. The standard trees of former times were uncertain; they bore well in good seasons, and badly in bad seasons; it is the same now. Nevertheless, these facts are submitted to our readers, in order that any who are disposed to try a few of these fruits on the simple plan of planting them in open borders may understand what is the prospect of success. We hope many of our readers living in southern and western parts of England will plant a few, and give them a fair trial. They will at least be as welcome as many other kinds of trees for the embellishment of the garden, if the fruit is below the mark in respect of quality. As we have spoken of standards, it is right to add that we do not recommend standards so called, but bush trees, such as are grafted close down to the roots, and have been allowed to grow naturally without training. Plant them early, on welldrained sunny borders, and have patience. Do not plant an extravagant number, but look on the affair as an experiment, and in due time let us know how you prosper. The following varieties are the hardiest, and are most likely to succeed in gardens anywhere south of the Trent, but north of the Trent the experiment is not likely to succeed anywhere:-

Apricots best adapted for Opin Borders.—Alberge de Montgamet, Blenheim (same as Shipley), Breda.

PEACHES BEST ADAPTED FOR OPEN BORDERS. - Sulhamstead Noblesse, Bar-

rington, Royal Vineyard, Galande.

NECTARINES BEST ADAPTED FOR OPEN BORDERS.—Hunt's Small Tawny, Hardwicke, Balgowan, Duc de Telliers, Violette Hative, Roman, Old Newington.
S. H.

THE VILLA KITCHEN-GARDEN.-No. V.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.

EANS.—The best varieties of beans are the Mazagan, the Long Pod, and the Green Windsor. The first of these is the best for an early crop, as if sown in November, it will frequently stand the winter in well drained soils, and come very early into use. The Long Pod is the next earliest, and by far the most productive variety, while the Green Windsor makes an admirable late crop, and is superior to all others when sent to table. Those for the first crop to stand through

Green Windsor makes an admirable late crop, and is superior to all others when sent to table. Those for the first crop to stand through the winter should have rather a light soil, and a somewhat sheltered position; but the later crops will thrive best in a deeply trenched, well manured soil: and as spring advances, if somewhat cool and strong, they will like the soil the better. The small Mazagan may be sown in drills two inches deep, and two feet wide, while the others will require a distance of thirty inches, and six inches between the plants. If a sowing is made in November, and another again in February, and again every three weeks after, until the beginning

of June, a succession may be kept up the whole season. The after culture consists in frequent stirrings of the soil between the rows, and earthing them as soon as they get six inches high; and when there are about twelve or fifteen inches of expanded bloom upon the stems, pinch out the top of the plant, this will induce them to swell

off their pods finer and more quickly.

BEETROOT .- Of beetroot there are many varieties in cultivavation, but the best which I have found are the Pine Apple, Nutting's Selected, and Cattell's Dark Red. To secure well-formed roots a rich, open soil is necessary; not too light in its nature, but sufficiently pulverized to be in a kindly friable state at the time of sowing. No root crop pays better for deep trenching than does this, for as soon as the descending roots come in contact with a hard under-surface, they immediately branch out, and the cultivator gets, instead of straight, clean roots, forked and deformed ones, many times wholly unfit for use. The time of sowing must depend upon the nature of the soil; if it be light, and the spot sheltered in a walled garden, the third week in April will not be too early, but in tenacious soils, and exposed positions, the first week in May will be as early as is safe. The seed should be sown in drills two feet apart, and not more than two inches deep. Look out for vermin as soon as the plant shows itself above ground, and keep it frequently dusted with some dry wood ashes or soot. About the middle of June it will be fit to thin out, and this must be done with the fingers, leaving a distance of twelve inches between the plants. Should gaps occur, fill them up by transplanting the strongest on a showery day, and on all favourable occasions afterwards keep the Dutch hoe in action amongst them, to keep down the weeds. They must be taken up about the middle of October, on a dry day, and stowed away safe from damp and frost.

BORECOLE, OR KALE .- Of these very useful winter and spring greens, there is none equal to the Scotch Kale. It is true that the Cottager's Kale is a desirable acquisition, but I question if its claims as a vegetable are so great as the other. There are two distinct kinds of the first-named, the tall and the dwarf. I prefer the latter myself on account of its compact growth and neat habit, which renders it less liable to be hurt by frost. A first sowing may be made in April, and another about the middle of May; the first will serve for the first cutting, while the late sowing will furnish plants to fill up any vacant ground. Later in the summer it is surprising how serviceable these late plantings are to come into use in the late spring months, when all kinds of greens are scarce. They like deeply-stirred, richly-manured ground, and should be planted out two feet apart each way. The same treatment will serve for the Cottager's Kale, the Buda, or the Jerusalem Kale. In the same category we have the Albert Sprouts and the Brussels Sprouts, but this last I shall treat of at greater length, because where winter vegetables are required, it is a valuable subject, and worthy of more extended cultivation in every villa garden. It should, therefore, be cultivated in a special manner. The first sowing of seed should be made on a warm south border, at the end of March; and when the plants are large

enough to handle, they should be pricked out into a rich border at six inches apart, and should be transferred to their permanent quarters about the middle of June. The spot should be rich and mellow, and the under surface well stirred up some time before. The after culture is to keep them free from weeds by frequent hoeings, and in about six weeks after planting, the plants should have three or four inches of soil drawn up round the stems on a dry day. These will furnish a good supply of sprouts from the middle of October until Christmas. A later sowing should be made at the end of April, the plants treated in the same way as the above, when they come in well to take the place of some early summer crops which are removed. These will not get so large as the above, but they will come in well to keep up the supply after the others are done, to say nothing of the many pickings of greens which they will produce after they begin to grow in the early spring. It should be borne in mind that the tops of Brussels sprouts should not be cut until all danger of severe frost is past, as when the hearts are taken off, it exposes a wound to the action of the frost, which soon causes the stem to decay. There is English as well as imported seed to be bought; the latter is generally preferred as being generally more pure. Nevertheless, we have seen such good crops from English seed, that we dare not say anything against it.

HARDY FLOWERS OF THE YEAR.



GIVE you a thousand thanks for the occasional hearty advocacy of hardy flowers in the Floral World. Many, many amateurs, who love their gardens, have neither time nor money to grow tender plants in any quantity, and some who do grow them might, I am sure.

have more enjoyment than they do, if they would give more attention to beautiful subjects that thrive in any soil, and take care of themselves entirely. Through your teachings I have been enabled to collect an immense number of most beautiful subjects that I should never have heard of through other works, for horticultural writers seem to consider it their first duty to lead people into expense, and to tread in the wake of what is called "fashion." Confound fashion, if it prompts me to look with disdain on a tuft of phlox in autumn, or to contemn wallflowers in spring; confound fashion, if it compels me to be satiated with yellow and scarlet in June and July, or even till the middle of September, and then leaves me to meditate on bare earth, like one who has been blinded by the splendour of fireworks, and cannot walk home in safety because of the intensity of the darkness. Do go on in this way; let us know more about the treasures Flora keeps in store for those who love simple things and constant change of beauty every day of their lives. Even now my garden is gay, the phloxes are not flowerless, the roses are still worth cutting, the Michaelmas daisies are bright and clear,

many of the primroses are in flower, and the early chrysanthemums, such as Berroll, are richly coloured. I now have flowers always, and yet I watch your pages with eagerness to learn whatever you have to teach me respecting hardy plants that I have not yet made acquaintance with. Let us hear more and more about them. Could you not, for example, take the flowers of the months, say on the basis of the lists in the "Garden Oracle" of 1861, and so present to us the names of all worth growing, that we may revise our garden collections, and obtain good things of which by the aid of such lists we might find ourselves deficient? Just observe, now, how rich we are in flowers for all seasons without touching one tender subject. January gives us several species of hellebore; the yellow aconite, and the tussilago; February presents us with snowdrops, daisies, marsh marigolds, and the dandelion, which, though a weed, is beautiful when it first appears. In March there is an outbreak of spring flowers-crocuses, hepaticas, alpine phloxes, arabis, large leaved saxifrage, violets, primroses, and fifty more good things of less note. In April all the foregoing may still be seen, with the Star of Bethlehem, several buttercups (the double garden buttercup is a most beautiful thing), American cowslips, the small red fumitory, the corydalis, and a few fine flowering trees, such as the red flowering currant, the plum-leaved spirea, etc., added to make a glorious garland. May is so rich in the bloom of fruit-trees that we scarcely need anything else; but we have the lilac and the laburnum above, and below we find several saxifrages in flower, a few species of symphitum, the pretty saponaria, and the oriental poppy. begins the joy of the florist in the bloom of polyanthus and auricula, and the new race of double pyrethrums, are especially splendid, and ought to be planted in quantities in every garden. In June we have irises and pæonies; in July œnotheras, portulaccas; in August phloxes; in September perennial asters (one named A. elegans is in bloom now, October 22, in my choicest border, and is a most lovely object—a slender bush covered with thousands of little white stars); in October the Japan anemone, and that most chaste and splendid white anemone which bears the name of Honorine Jobert. For November you have chrysanthemums; and the year winds up with berries in place of flowers. Yet I can always find a few primroses, violets, and a few of the hardy asters for the December wreath; and in the shrubbery, perhaps, there are flowers on the fragrant honeysuckle (L. fragantissima), and the Dauric rhododendron, and perhaps the garrya may be in flower, in which case I am rich indeed. We want—at least I want, I am sure others want—to see good lists. and large lists, of hardy plants, for too many who would grow them know not what to grow; and if you take up the subject, we know it will be dealt with in a sound, practical, useful manner.

Norwich. W. Fellowes.

[We are preparing lists of all the best hardy herbaceous plants for the next issue of the "Garden Oracle," a work better adapted for the purpose than the FLORAL WORLD, as its arrangements admit of a complete presentation of the subject, and the concentration of a large mass of information in a small compass.

—S. H.]

IBERIS, OR CANDYTUFT.



HE gardening world must look with no little interest at the old-fashioned, neglected things that are, from time to time, resuscitated from the oblivion into which caprice or indifference has cast them. Tastes and prejudices in floral matters will, perhaps, always vary and fluctuate

as fashions do; and if I may judge by the inquiries made after many of our old-fashioned plants, as noticed in the Floral World from time to time, a reaction is decidedly taking place in favour of the old plants of our gardens. May I be allowed to make a few remarks on some plants, about which as yet you have said nothing, and on some of which you have not said enough. The Iberis is amongst the latter. These plants, of which I. sempervirens may be taken as a type, are in reality evergreen shrubs. I shall only notice two or three kinds, merely to show not only their beauty,

but their utility, even in the most refined parterres.

To commence with I. sempervirens. This is, perhaps, one of the freest flowering plants on earth—a very mountain of snow; a thousand heads of bloom, of the most intense whiteness, would be but a low computation on a well-managed specimen; but it must be managed - which is very simply done-so as to make it highly ornamental in spring, and a beautiful object in mid-winter. plant, if left to itself, soon assumes a straggling, untidy kind of habit; to counteract which, and to render the plant worthy of any place, an annual pruning is necessary. The moment the plant begins to look seedy, take the shears and clip it closely over, and reduce it to what size you choose, which may vary from one foot to two, according to position and the effect desired. No plant bears clipping better; it soon forms a beautiful compact evergreen bush, and in the latter character is as telling in mid-winter as its profuse flowering is in spring. A score or so of this plant, systematically planted, would lighten up the finest garden at a very early season, if allowed to form a permanent part of the design. A nobleman's gardener lately told me it was a beautiful plant, but of no use, as he had always to lift it before it had done blooming, to make room for the geraniums, etc. What a folly!

The next variety we shall notice is *Iberis corifolia*, or corisleaved. This plant has lately become deservedly popular, though it is not new, having been introduced about 140 years ago; it is, perhaps, the finest of the tribe, decidedly shrubby, and should be well stopped in when young, as the plant would otherwise become straggling. Individually it is most beautiful, either as a pot plant for exhibition, or a first-class plant for the border, but does not bloom with the freedom of *I. sempervirens*, and therefore less adapted

for display as a grouping plant.

The last plant of the tribe I shall notice is I. garrexiana; and looking at the plant in all particulars, we may say the last shall be first, for lighting up the darkness and clothing the nakedness of our flower-gardens in spring, flowering, as it does, even in the north of

England, in early April, and therefore may be thrust aside in May, so as to leave a clear stage for the scarlet and yellow. It is the dwarfest-growing of the tribe, barely reaching eight inches high. When in flower, forming a low evergreen mass, at all times sheeted over in spring with the purest of white. If liberally planted, it has a very cheerful effect in spring; or may be used advantageously as an edging to the larger beds, giving a ring of snow in April and May, and ditto of green the rest of the year. Unlike sempervirens, or corifolia, this may be propagated by division. Growing close to the ground, every branch becomes rooted, and a medium-sized plant will break up into twenty or more.

Bath Lodge, Ormskirk.

THE PHLOX AS A BEDDING PLANT.

E do not suppose that by penning this paper we shall diminish the popularity that our bedding plants have attained as more suitable for this purpose, because there are yet some great guns to be silenced, and a formidable force to contend against, which must receive

a check before we can hope to see any chance of their retreating to their old quarters (the herbaceous border); but nevertheless we are sanguine of living to see that day-not that we shall rejoice at their downfall; we shall rather hasten to assist them in their dilemma, because we can offer them the condolence of long-tried friends, and we shall be deceived if these do not rise higher in the estimation of all true lovers of flowers, and thus in the end the herbaceous border will be the gainer, because old advocates will return more enthusiastically than ever, and young innovators will set to work in earnest, because to them it will open up a wide field of operations in which their genius can be turned to a profitable account. We think no apology is requisite for introducing this subject. We shall therefore suggest a few plants as suitable to that style of gardening, but which we seldom see used for that purpose; and the subject for this paper, as will be seen above, is the Phlox, and we do not hesitate to say in a mass it is one of the grandest and most showy of our herbaceous plants-so much so that we believe only those who have seen it as we saw it at Messrs. Wood and Sons' Nursery, at Maresfield, can form an idea of the grand effect it produces. Although it is now a little more than three years since we saw them at the above nursery, the impression they made on our mind is still fresh in our memory, and we think never will be quite effaced. As well as we can remember, we think there were four beds six feet wide, and some twenty yards in length, with four rows in a bed. Now let the reader imagine, if he can, the gorgeous display that these would produce through the months of July and August, computing at the lowest number that each bed contained at the time I saw them (July) 500 spikes of flowers, and these possessing all the intermediate shades between crimson, white, and purple, and most of them presenting a distinct and conspicuous eye. We venture to say that a more pleasing sight never greeted the horticultural eye; and whether it was the peculiar treatment they received here, or whether it was that the soil is more suitable for them, we do not know, but certain it is, we have never seen them in such perfection elsewhere.

Now it must not be inferred that we expect they can be grown so extensively in private places, but there are many large establishments where they may be had in such numbers as to give a very striking effect, and we do not doubt but that to many it would be a very agreeable change, for the eye gets tired of continuously looking upon long rows of scarlet geraniums. Then as to the occupants of small places, they must not think that they are to be excluded from growing this beautiful summer plant; and for their special purpose we give here the names of four varieties, the effect of which, if planted two rows deep round a circular bed, we are sure would be magnificent. A centre of five plants of Colonel Dundas, purple centre; two rows Countess of Moreton, white; two rows Rigoletto, bright crimson; two rows Dwarf Variegated. We should much like to see this arrangement carried out on a ribbon border, and if the same liberal treatment of copious drenchings of water were given, the same as for bedding plants, we have no hesitation in saying the

result would be highly satisfactory.

The Phlox will grow in almost any soil, but a moderately dry friable loam is the best for it, which should be rich and porous, as stagnant water is fatal to its fleshy roots. It requires some support when grown in exposed situations, and as a precaution against a wet and cold winter, they should be taken up about the first week in November, and be stowed away under a stage in a greenhouse, and preserved from the drip, and to be planted out again about the last week in March. A very troublesome enemy to the young growth, just as it has appeared above ground, is the little red ant, but about a tablespoonful of soot shaken round the plants will soon disperse them. They are very readily propagated by divisions of the roots, or by taking off the stems at the crown of the plant when they have grown to about the length of three inches. If these are placed in a little bottom-heat, they will soon emit roots, when they may be hardened off and planted out, but should not be suffered to flower the first year. If we were about getting up a collection, we would purchase next spring all the varieties we intended to grow, and then place them in a suitable spot in the kitchen garden, supply them plentifully with liquid manure, and keep all flowering stems pinched back to the height of twelve inches; this would cause a greater action at the roots, and thus enable us the following spring to divide them into three or four parts each. CALVERT CLARKE.

THREE GROUPS OF GOOD ROSES.

OST people who set about planting that most essential element of a garden, a rose-bed, would like to secure for it the best roses of the prevailing tints of colour, and accordingly their first proceeding is to send for a catalogue from one of the leading nurserymen, and plunge

into the intricacies of the descriptions of the four or five hundred roses specified. The result is not always satisfactory. Let us, therefore, the present time being very opportune for sending out orders, try and make a few selections of groups likely to suit in-

quirers.

Group No. 1.—Anna Alexieff, fresh rosy pink, very free flowering, elegant foliage. General Jacqueminot, rich scarlet crimson, also very free flowering, too well known to need recommendation. Emotion (a Bourbon perpetual), white, with a pink centre, also free flowering. Charles Lefebvre, dark velvet scarlet, shaded with black towards the bottom of the petals; this is in all respects the best rose grown. Princess Mary of Cambridge, a most excellent globular pink blush, very different to Anna Alexieff in form and colour. John Hopper, intensely bright light crimson centre, graduating towards the outside petals to a lilac pink. This group will do any-

where with ordinary attention and cultivation.

GROUP No. 2.—Alfred Colomb, true crimson, with every good quality, form particularly lovely. Souvenir de la Malmaison (Bourbon, but always in bloom), externally white, flesh-coloured centre; this is the finest light rose known. Madame Moreau, a lustrous dark crimson, with petals curiously folded, velvety and effective. Gloire de Dijon, yellow buff and pink, everywhere cultivated, or at least it ought to be. Madame Victor Verdier, cerise crimson, with the faintest tint of violet, a noble rose. Comtesse de Chabrilland, light pink, one of the most perfect of roses, if highly manured and properly attended to. N.B. This group consists of magnificent large roses, which require only to be seen to be highly admired, and like most other good things, they demand good cultivation, which means good stiff loam, strong manure, and careful planting, and that surely is not asking for much.

Group No. 3.—Duchesse de Morny, true rose colour, the finest and most stately of its colour. Prince Camille de Rohan, maroon and scarlet, very fine in all respects. Marguerite de St. Amand, light pink, centre a little more intense, probably the finest light rose after Souvenir de la Malmaison. Maurice Bernardin, scarlet, with a faint tinge of violet; lovely colour. William Griffiths, glossy pink, an old rose, but not likely to be excelled, but N.B., order this specially on a dwarf briar. Pierre Notting, dark crimson, deeply shaded with violet, a noble globular flower. This group also requires high cul-

tivation.

These three groups are sure to please most people, and arranged in three separate beds will afford a feast of flowers.

VIATOR.

WEEPING TREES.

ANY fine breadths of grass in villa gardens are made unsightly, or considerably less attractive than they might be, through the lack of interesting trees and shrubs of a character suitable to the position. In some of the fine old gardens we see huge clumps of Rhododendron, Por-

tugal Laurel, and Lauristinus, and when these are surrounded with great breadths of open grass, and judiciously disposed so as to improve rather than obscure the views, there can be nothing to surpass them for grandeur. We could name a few gardens near London where clumps of these evergreens have grown to such dimensions, and with such perfect symmetry, as to be worthy of enumeration among the grandest horticultural spectacles, as we could name others where attempts at similar effects have completely failed, and all that can be found in proof of the original intentions of the planter, are scrubby, shapeless masses, consisting of myriads of bare stems with shapeless heads of foliage, plentifully intermingled with dead wood and gross branches that have grown with a will of their own, and project beyond the general outlines like the boughs of oak that are thrust out of the windows of taverns on "Royal Oak Day." The fact is, to decorate a lawn a considerable amount of taste is required. scene it opens upon must be first thought of, and its surroundings are of scarcely less importance. Where there is a fine panorama of open country beyond, it would be an outrageous thing to block it out with a wall of vegetation, however fine that might be; but every one accustomed to criticise the characteristics of artificial and natural scenery must have observed that when seen through suitable openings among umbrageous vegetation, distant views have oftentimes a charm which would be lost were there no interruptions to the line of vision, and we may sometimes gain variety by partly obscuring a view, so as to reveal it partially at first, and compel the spectator to traverse the grounds in order to pass beyond the objects by which it is partially obscured, in order to obtain an uninterrupted view. It is for such a purpose that evergreen trees and shrubs of massive character are mostly valuable on lawns, and it will be found as a rule that they tell with best effect in the composition when removed to some distance from the foreground of the picture. Probably the finest tree we possess for distinct landscape effects is the Wellingtonia, but a belt of Wellingtonias on the ridge of a hill, or as a boundary to a tame prospect, would probably be little more effective than a belt of Scotch pine; for in such positions the eye is not so much concerned in tracing distinctive forms and characters, as in resting on the breadth of deep green verdure, and enjoying it as a mass, irrespective altogether of its elementary features. A great mistake is oftentimes committed in landscape gardening in planting trees of deep colours and heavy outlines too near the dwelling, for this system almost precludes the use of the lighter and more graceful forms of vegetation, which are suitable chiefly for the foreground, and show their outlines and

elegant traceries to much more purpose when contrasted against heavy masses placed beyond them. As the season of planting is near at hand, we purpose to name a few subjects adapted to light up garden scenes, and lend a peculiar beauty and interest to the lawns; and we are the more concerned to call attention to these because we see many examples of the misuse of the more sombre materials, the result being frequently an apparent contraction of the space allotted for the pleasure grounds, and a monotony arising from the comparative sameness of the forms and colours.

It is of course impossible in any general remarks on such a subject to indicate precisely the best modes of using any particular tree, still there are certain principles of general applicability, and one of these requires that there shall be perfect congruity between an object and the associations that belong to the spot it occupies. Thus one of the most elegant of lawn trees is the American weeping willow, which by its very name and character may always be much more appropriately placed near water than on a high dry bank or architectural terrace. Its very appearance reminds the spectator of water, and at first sight of the tree he may reasonably look around him to discover if he has come unawares to the border of a lake, or the neighbourhood of a fountain. But given the proper accessories, and there is no tree in our gardens that can surpass in grace and liveliness of character the Salix Americana pendula, and in the form of a standard it is the most suitable tree that can be chosen for a fountain, as the Kilmarnock weeping willow, S. caprea pendula, is equally at home on the margin of a lake or stream. Leaving the aquatic scenes, and considering what may be called the every-day wants of amateur gardeners, we shall here recommend a few of the most elegant weeping trees suitable for conspicuous positions on lawns, at angles of intersecting walks, and to mingle with the less formal scenery of the "banks and braes" in gardens. There are several beautiful pendulous varieties of elm, of which, perhaps, the most elegant is the Scampston weeping elm, Ulmus montana pendula nova, a great improvement on the better known and much admired U. montana pendula. Of this Scampston elm there is a variety with variegated leaves, which has a remarkably elegant appearance when placed in a good position on a broad sweep of lawn. For the fronts of shrubberies, and to beautify a slope or half wild position, the small-growing Ulmus viminalis, and its variegated form, are admirably adapted, and these may be known by their slender twiggy character, and their small leaves, in this respect being distinct from all other elms known. Where a single weeping tree is required to "stand upon its own merits," or it is desirable to plant a pair which shall command attention for distinctness and beauty, Sophora Japonica pendula has no equal. This tree is a native of Japan, and belongs to the Leguminous order, being closely allied to the laburnum. It produces dark green pinnated leaves, and when worked standard high grows somewhat in the form of an umbrella nearly closed, the long branches hanging down all round the stem in an almost perpendicular direction. we had room only for one pair of weeping trees on a lawn, we are inclined to think our final choice would fall upon Sophora Japonica pendula. Where there is sufficient skill for the task of growing Wistaria sinensis as a weeping standard tree, it makes a grand feature on a lawn, and blooms so profusely as in some seasons to be as densely covered with its purple racemes as a specimen of Cytisus or an exhibition Azalea. But it must have room, the stem must be supported by a stake, the growth must be led on light supports in the directions necessary to form the proper outlines, and the subsequent growth must be pinched in from the middle of June to the middle of July, or it will soon grow out of bounds, and become an almost inextricable confusion. There are a few other varieties of well known trees which deserve attention for their elegantly pendulous habit. The weeping limes, poplars, oaks, and beeches have their several distinctive characters; but amongst them the palm for distinctness and beauty must be awarded to two of the poplars—Populus canescens pendula and P. tremula pendula, the constant agitation of the leaves of the last-named, together with its fine weeping habit, render it a most interesting subject, and its beauty comes out fully when its light tints and graceful outlines are assisted by dark backgrounds of more massive timber. Of the beeches, Fagus pendula nova is the most pendulous habited, and is a proper subject for a grand style of planting, but of no use at all in a small garden. The most distinctly pendulous oak is Quercus pedunculata pendula, a very lively tree, combining grace with majesty. The weeping Turkey oak, Q. cerris pendula, is a great beauty. We are not fond of the ash, and rarely derive any pleasure from its aspect in gardens; but as the ash has a fame in woodcraft, it is well we can introduce two very elegant weeping varieties in addition to the well-known weeping ash of the London gardens. The common weeping ash is Fraxinus excelsior pendula, a truly noble tree when well grown, and the best for giving shade to a resting-place; but with Londoners it is not now in very high repute, owing to its frequent use in tavern-gardens, where it is generally associated with tawdry rockeries and little dens called "arbours," dedicated to drinking and riot. Considered apart from such scenes, it is a truly noble tree, and well worth the care necessary to train out the growth in the formation of a gigantic umbrella of its large deep green leaves and rigid branches. It is, however, quite surpassed in beauty by two variegated-barked varieties-F. excelsior argentea pendula, and F. excelsior aurea pendula, the one having a silvery, and the other a golden-colcured bark. The bright colours of the young twigs of these varieties have a very curious effect, as the tracery of the whole of the tree appears to be picked out in bright lines, and this tends greatly to relieve the stiffness and formality peculiar to the weeping ash. The weeping walnut, Juglans regia pendula, is not to be recommended for choice purposes. It is a noble tree, but should only be planted where it can grow to a large size and form timber in the proper sense of the word.

Having in view only the best among hundreds of varieties of trees of more or less pendulous growth, we shall name only one more of deciduous habit, and that is the weeping thorn, *Cratwgus pendula nova*, a very elegant lawn tree, and a proper companion to standard weeping roses, which scarcely need mention, for no one could forget

them in calling over the subjects best adapted for embellishing a lawn. But we must add to all these deciduous subjects one evergreen, the weeping holly, of which there are two distinct varieties—Ilex aquifolium pendula, a variety of the common green holly truly pendulous in habit, and a very pretty object in winter; and the variegated weeping holly, Ilex aquifolium pendulum variegatum, which was brought out a few years since by Perry, of Banbury. This last is the most beautiful evergreen shrub known, and as well adapted for the smallest garden as for the largest. C. W.

TREATMENT OF LUCULIA GRATISSIMA.

ATURALLY, this species is of luxuriant growth, making a few shoots, which grow to a great length, and consequently it is not by any means a bushy plant. After it has flowered, or, indeed, before the flowers are well fallen, these branches produce several shoots near the apex, all

the lower buds remaining dormant; and hence the plant is left bare of leaves and shoots, for, perhaps, more than half its height. And if this is continued for two or three years, the growing powers of the plant are impaired, owing to the large quantity of useless old wood that consumes the sap necessary to support new growths. From this many cultivators have concluded that, to have good specimens, a fresh stock of young plants is necessary every year, and on that supposition have discarded the old ones. Now, although it is undoubtedly highly desirable to have a number of young plants to flower as dwarf specimens, it is quite as much, if not more desirable, to have large bushy specimens furnished with branches to the surface of the pots; and this can only be done by preserving the old plants. The great error in their management is the fear of using the knife freely. It is only by pruning, and severe pruning, that the naturally straggling character of the old plants can be overcome, and reduced to the desired bushiness. Instead of allowing the uppermost buds on the preceding summer's growth to furnish the shoots for the succeeding season, the old branches should be cut away to within an inch or two of their base. Thus, two or three, or perhaps four branches, will be obtained from each near the point from which only one or two sprang the preceding year; consequently, the number of shoots will be yearly increasing, and instead of becoming naked at the base, and of a scattered growth, the bushiness will be continually augmented.

This character, however, may be carried to excess, even with the *Luculia*; for if too many shoots are permitted to form, they will prevent one another from acquiring that degree of vigour which is necessary to produce a good head of bloom. Besides, the large size of the foliage demands a proportionate space for their exposure to light, and, if they are crowded, the loss of the interior and lower ones

will be the inevitable result. Another error which necessarily ensues from permitting the uppermost buds to remain is, that as they have mostly begun to grow before the flowers are withered, the plants are deprived of their season of repose, and kept in a continual state of excitement. But, when pruned back to the lower buds, they may be placed in a cool place, and left without any water till the beginning or middle of February. Sometimes, before they are again excited, a quantity of the earth should be shaken out from the roots, and fresh compost supplied. A rich loam, full of decaying vegetable fibre, and a third part of leaf-mould, makes an excellent mixture for them. When good peat can be easily procured, a portion may be

added, but it is by no means indispensable.

A great mistake is committed by putting in heat immediately after they are potted. It is quite necessary to leave them a week or two in a cool place, that the buds may acquire additional vigour, and the plant be storing up sap to feed them when they are once more wanted to grow. Moreover, some of the roots will certainly be damaged in clearing them of the old earth and re-potting, and if the plants are removed too suddenly to a high temperature, the buds will begin growing before the roots are in a condition to convey a sufficiency of nourishment to support them. A pit, where a temperature of from 60 to 70 degs. can be maintained—according to the external weather and the advancement of the season, together with a proportionate humidity, is far preferable to a house during the first stages of growth. A rather liberal supply of water will be needful, and a gentle circulation of air. As the season advances towards midsummer, more and more air should be given, and the sun must never be allowed to shine fully upon them, as it is injurious to the young and tender foliage. After the middle of July a pit is no longer necessary, and the plants will be benefited by being removed to the shade of a north wall, where they can also be sheltered from strong winds. Here they may be permitted to remain till the beginning of September, by which time every branch will be crowned with a tuft of flower-buds, and they will need no other heat to develop them than what is afforded by a close pit. Indeed it is a very pernicious practice to give them much heat, for the flowers will be larger, and stronger, and better coloured, as well as able to last for a longer period, if slowly and steadily brought on till they expand; and, moreover, the leaves will have time to gain a fuller green.

It will be seen, then, by the foregoing observations, that the ordinary method of growing them in a stove is far from being the most appropriate. The plants are by that method rendered so tender, that they will scarcely endure the temperature of the greenhouse whilst in flower. Another evil is, that whilst the flowers are inferior, the length of the stems is increased to a weakening degree. The resources of the plants are thus drawn upon in an increased ratio to furnish nourishment to that which, so far from being an improvement to the appearance of the specimens, is decidedly a detraction from their beauty, and at the same time an injury to their constitution. The main reason for giving them a situation, when they are removed from the pit, where they may be continually

shaded from the sun, is because a full exposure robs the leaves of their bright green colour. They will, nevertheless, in spite of this precaution, though to a less extent, assume a reddish tinge, but after they are returned to the pit they will have time to recover their green hue before the flowers open. While these remarks, however, exhibit the essential elements of good culture, in reference to small specimens, the Luculia must not be considered unsusceptible of being grown to a large size, in proper conditions. Like the Hydrangea, it will become an ugly object when allowed to grow more two feet high, if it be not frequently pruned. But, when pruning is regularly practised, it can be made to reach the height of five or six feet, and yet retain an ornamental character. Indeed, a good specimen of this height is a most magnificent thing while the flowers are open.

To cultivate the *Luculia* to any size, it wants planting in the bed or border of a conservatory, where it will be sufficiently shaded to prevent the sun beating fiercely upon its leaves, and yet not altogether deprived of a large amount of indirect light. It should also be put where a current of cold air can never play round it, and then, provided it be planted in generous soil, well drained, and yet capable of being kept moist enough to maintain a rather damp atmosphere around the plant, it will flourish with a luxuriance that is seldom

witnessed, and bloom in a very splendid manner.

After two or three years' growth in the same soil, a mulching of well-pulverized manure will be of the greatest assistance to the plant, and this should be liberally continued in every subsequent season. Wood ashes or charcoal would be an excellent thing to mix with the compost in which it is placed, whether in a pot or border; and broken stone might be substituted when they cannot be obtained. The species, being peculiarly liable to suffer from over-watering, or from standing water, some such appliance to draining is particularly desirable. The charcoal and ashes would likewise be useful in a nutritive point of view.

P. M.

PEACH-HOUSES, AND PEACH-TREES THAT HAVE FRUITED.

VERY much has been written upon the culture of the Peach and management of the Peach-house. I feel it would be needless for me to enter into details; but there is one point which is generally overlooked by gardeners in their advice under this head; the directions hold good up to the time the fruit is ripe, and nothing more is said upon their culture till frost sets in. Many naturally suppose the house may be left to take care of itself till the leaves are off, and the sooner that takes place the better. But such is a great mistake. I am convinced that after the fruit is gathered is the critical time with them; every root has been taxed to its utmost to perfect the fruit, therefore, in order to insure a supply for the coming year, constitutional vigour must be replaced. As soon as the fruit is gathered the trees should have a thorough washing down with clear soot-water, and also a thorough watering at the root, and two or three days after another watering with weak liquid manure, and the ground sprinkled over with dry soot. If the house is shut up early the wood will ripen far better than by leaving the trees exposed to the cold autumnal nights, and the soot from the ground will impregnate the atmosphere of the house, keeping down insects, and be very healthful to the trees. Keep the leaves in health as long as possible, and rewater if required.

H. S., Yeovil.

BERBERIS JAPONICA, CONCINNA, FORTUNEI, ETC.

S the following fact worthy of your notice? On the 17th of last June I gathered some berries from Berberis Japonica, and gave them to Mr. Masters, whose head gardener sowed them on the same day, placing them in a hothouse. In less than six weeks these berries produced young seedlings, which are now about two inches high; the berries is the large of the same day.

were planted whole, and some of them produced three plants each. I believe it generally takes a year or more to produce plants from the berries; if so, the growth in the present instance is something remarkable. In several gardens that I have visited this year I have found B. Japonica in very poor condition; the plants stunted, leaflets small, broken, and discolonred; evidently no attention had been paid to either soil or situation. I have nearly two dozen plants, all growing most luxuriantly; one in particular has very large leaflets, some of them measuring five inches by four, larger than the pulm of a large hand. This success is no doubt owing to my following your directions, given in the August number of 1862 of the FLORAL WORLD. I have used plenty of rotten dung, with sand and turfy loam, and late in the last autumn placed round each plant a mulch of rather fresh stable manure, the best part of which the rains washed gradually down to the roots. In fact, the soil can scarcely be too rich, and I fancy that nearly all the species of Berberis will thrive under similar treatment. There is only one fault that I can find with B. Japonica, and that is, when placed in front of shrubberies the leaders bend forward to the light, spreading the leaves out like a fan, instead of bearing them horizontally.

I hear that B. Japonica, as it is commonly called, is a native of China, this species not being known in Japan. I find it called in Johnson's "Gardener's Dictionary" Beali planifolia. Mr. Standish has a new Berberis which is really a native of Japan; he has not yet sent out any of the young plants, nor is the species

even named.

Do you know B. stenophylla? I bought a plant from Mr. Bull, of Chelsea, last spring, and it has since made a shoot nearly four feet in length, and thicker than the main stem. In this rapidity of growth stenophylla seems to take after its parent Darwinii, a plant of which in my garden has this summer sent up a very stout shoot upwards of five feet in height. I find it very difficult to procure some of the rarer species of Berberis. I applied to the nurserymen recommended by you in the September number, and find that I can obtain B. Jamesonii from one of them, but for B. macrophylla I must send all the way to Exeter. One firm wrote to say that they once cultivated all the species, but at last threw them away, as there was no demand for them.

I was looking at one of my plants of B. concinna (Himalaya) this morning, and was surprised to find some few berries on it, and still more surprised to find them scarlet. With the exception of B. vulgaris, I believe all the Berberries have purple fruit; if so, the variety is worth noticing. I inclose a leaf and berries of B. concinna, also a leaf and berries of B. vulgaris, in order that you may compare

them without being put to the trouble of sending into your garden.

I also inclose the old and new leaves of a Berberis called B. nitens, which I received this morning from Messrs. Lucombe and Pince, of Exeter. It is evidently only a variety of B. aquifolium, but a very marked one, in the highly varnished-like appearance of the old leaves, and in the rich bronze of the young leaves. I have ordered one, as I feel almost certain that it will propagate easily by suckers, like aqui-

folium, and prove a useful variety in the shrubbery.

In August, 1862, you wrote in Floral World with regard to B. Fortunei, "I have never seen it in bloom." Inclosed is a specimen of the first plant that I have seen in bloom, by which you will observe that the flowers are produced in upright spikes. The probability is, that since you wrote the above you have seen plenty of these plants in bloom, and my communication turn out to be rather too late. I have now succeeded in procuring every species of evergreen Berberis, with the exception of B. trifurca. I had to send to Exeter for B. macrophylla.

[We have been greatly interested in our correspondent's success in collecting and cultivating the species of Berberis, the result, he informs us, of a passion aroused by the perusal of an article on the subject in the Floral World of August, 1862. We have many times seen the flowers of B. Fortunei since 1862, but find that it is only as

a pot plant we can really keep it at Stoke Newington, for in severe winters it perishes in the open ground. B. nitens is probably a garden hybrid, largely indebted to B. aquifolium for its existence. When rambling through the rockery at Messrs. Lucombe, Pince, and Co.'s nursery, in the spring of the present year, we saw several new seedling hybrids of Mr. Pince's raising, which J. J. would no doubt like to see too. B. trifurca is scarce; the last time we saw it was at Messrs. E. G. Henderson and Sons, St. John's Wood; the plant stood six feet high, and was in a large pot. The most useful of all at Stoke Newington is B. fascicularis hybrida, which forms a very handsome bush.

NEW PLANTS.

ELPHINIUM TRIOMPHE DE PONTOISE (Floral Mag., t. 314).—Ranunculaceæ. A beautiful hardy plant, with double flowers of a pale azure colour. A valuable addition to this useful class of plants.

Passiflora fulgens, Shining Passion-Flower (Belg. Hort. xvi. 193, t. 13).—Passifloraceæ. A handsome stove climber, with leaves like

those of the oak, and rich scarlet flowers.

SIPHOCAMPYLUS FULGENS, Shining Siphocampylus (Flor. Mag., t. 313).— Lobeliaceæ. A handsome stove herb, with ovate leaves and axillary tubular flowers

of a rich orange scarlet colour.

Saccolabium Giganteum, Giganteum was for a long time a fabulous plant, very ill-known from ugly, shrivelled flowers collected in jungles in Burmah by the late Dr. Wallich. Now at length it is to be had in the nursery of Messrs. Veitch. The flowers are nearly of the same shape as those of S. violaceum, but larger. Both sepals and petals are cream-coloured, the petals bearing a row of amethyst-coloured dots. The lip is of a very intense amethyst colour, enlivened by some darker amethyst-coloured streaks over the veins."

AQUILEGIA PYRENIACA, Columbine of the Pyrenees (Flor. Mag., t. 322).— Ranunculaceæ. A beautiful dwarf herbaceous plant, resembling A. alpina, but smaller and with fewer flowers, these being comparatively large, and of a pale

lavender blue.

AUCUBA JAPONICA GRANDIDENTATA MACULATA, Aucuba with leaves deeply toothed and spotted (Neerl. Plant., t. 28).—Cornaceæ. A handsome variety of this well-known shrub, and one which bears berries freely when fertilized.

AZALEA, HER MAJESTY.—A beautiful variety, of average size and fine form, the colour soft lilac blush, shading to white at the margin, and irregularly striped

with purple

CORYSANTHES PICTA (Neerl. Plant., t. 25).—Orchidaceæ. A curious terrestrial stove orchid, with a solitary cordate ovate leaf, and a nearly sessile bilabiate flower,

the colours of which are deep purple and yellow.

Desmodium Penduliflorum, Pendulous-Flowered Desmodium (Neerl. Plant. 1866, t. 2).—Leguminosæ. A hardy shrub, growing five to six feet high, with trifoliate leaves and axillary racemes of small purplish flowers. It is eminently graceful and ornamental.

Odontoglossum astranthum (Gard. Chron., 1867, 404).—A panicled species, like O. odoratum, but it has the novel feature of a fringed anther bed. Its advent breaks down the proposed section, Tyrmenium of Bateman, by connecting that group directly with O. odoratum.

NANONES MEDUSÆ (Gard. Chron., 1867, 432).—Orchidaceæ. A curious, beautiful, and quite novel orchid from South America. The sepals and petals are ligu-

late, the lip is large, sub-rotund, and richly fringed on the margin.

Odontoglossum triumphans (Gard. Chron., 1867, 516).—This is proposed (H. G. Rech, fil.) as the permanent name of an orchid, otherwise known as O. Hallii and O. spectatissimum. It is a fine thing, the pure golden yellow of the flower is revived (? relieved) by the dark crimson brown blotches. The lip is nearly white, with some brownish blotches, but it occurs also yellowish.

Phajus inquilinus (Gard. Chron., 1867, 544).—One of Mr. Dominy's hybrids,

the parentage of which is unknown. The flowers are cream colour, the three keels

of the lip yellowish white.

CIRRHOPETALUM PAPUDII (Neerl. Plant., 1866, t. 4-5).—Orchidaceæ. A curious stove epiphyte, with a creeping rhizome, compressed pseudo bulbs, solitary elliptical leaves and flower-scapes, containing an umbel of from eight to ten large flowers, which are brownish red, with a purple lip.

HYDRANGEA JAPONICA MACROSEPALA, Hydrangea with broad sepals (Gartenft. t. 520).—Hydrangaceæ. A variety somewhat resembling the var. rosalba of Van Houtte, but having the segments of the sterile flowers one and one-third inch

broad.

IRIS KEMPFERI (Neerl. Plant., t. 33-34).—Iridaceæ. Two fine new varieties of I. Kæmpferi are here figured; their names are P. Von Siebold and A. Von Humoldt. The first is a deep purple with golden blotch, the second pure white with golden feather. They are grand additions to the splendid series of Irises in cultivation, and will be distributed with others equally as good, and of the qualities of which these figures afford hopeful suggestions.

OPHIOPOGON JAPONICUS ARGENTEO-STRIATUS, Silver-striped leaved Japanese Ophiopogon (Neerl. Plant., t. 31).—Liliaceæ. A pretty dwarf herbaceous perennial, with linear lanceolate leaves elegantly striped, and racemose spikes of deep blue berries about the size of currants. As the flowers are not described, we sup-

pose them to be inconspicuous.

LAMPROCOCCUS WEILBACHII (Neerl. Plant., t. 26).—Bromeliaceæ. A stove herb with ligulate leaves, and an erect scape bearing crimson spathes and purple

flowers. A plant of no use except to botanists.

VRIESIA BRACHYSTACHYS (Gartenft. t. 518).—Bromeliaceæ.—A stove plant with ligulate leaves and a spike of yellow flowers issuing from reddish bracts. Scarcely ornamental.

Vanda Bensonii (Gard. Chron., 1867, 180).—Orchidaceæ. An interesting novelty, and a new type among vandas. The flowers are comparable to those of a well-developed V. Roxburghii, white outside, yellow inside, spotted and streaked with brown. The lip is ruby, with some purple and yellow spots. The flowers smell like sliced cucumbers. The petals are hastate, and the lip is dilated at the end like a mallet.

PHAJUS IRRORATUS (Gard. Chron., 1867, 264).—Orchidaceæ. A hybrid raised from P. vestitus and P. Tankervilliæ, by Mr. Dominy, of Messrs. Veitch's Nursery, Chelsea. The sepals and petals are creamy white, with a rosy hue; the lip, which is nearly circular, is of the same creamy white, with a yellow tinge.

COTONEASTER FONTANESII (Rev. Hort. 1867, 33).—Rosaceæ. A handsome shrub, with oval elliptic leaves, and numerous small white flowers, which are

succeeded by spherical fruit of a coral red colour.

GRIFFINIA BLUMENAVIA (Rev. Hort., 1867, 32).—Amaryllidaceæ. A Brazilian bulbous plant, with ovate elliptic leaves and an umbel of white flowers, the upper segments of which have a broad central stripe of rose colour.

HEMEROCALLIS MIDDENDORFI, Middendorf's Day Lily (Gartenfl. t. 522) .-

Liliaceæ. A hardy perennial, resembling H. fulva.

ULMUS CAMPESTRIS AUREA, Golden-leaved Elm (La Belg. Hort., 1866, t. 19).
—Ulmaceæ. A hardy deciduous tree, the leaves of which are of a deep golden yellow.

Anthurium pedatifidum (Gartenfl., t. 501).—A handsome stove perennial,

with roundish leaves divided into nine to eleven segments.

BLETIA HYACINTHINA ALBO-STRIATA (Gartenfl., t. 527).—Orchidaceæ. A well-known ornamental greenhouse plant, bearing rich carmine purple flowers.

EUPATORIUM RIPARIUM (Gartenfl., t. 525).—Compositæ. A pretty sub-shrubby cool greenhouse plant, growing one to two feet high, with oblong coarsely-toothed leaves, and terminal corymbs of small white flowers.

Hemerocallis fully kwanso (Gartenfl., t. 500).—A splendid hardy herbaceous perennial; it is a variety of H. fulva, the leaves are striped with white, and the tawny-red flowers are filled out with a tuft of small petaloid segments.

HYDRANGEA PANICULATA FLORIBUNDA (Gartenfl., t. 530).—A fine hardy shrub, with grand pyramidal panicles of white flowers; extremely showy and interesting.

incer-post PURCHASERS FOR PLANTS, SEEDS, ETC.

A SELECTION OF USEFUL FRUITS.

Apples for Orchard Planting .- Alfreston, Bedfordshire Foundling, Bess Pool, Bleuheim Orange, Court of Wick, Dumelow's Seedling, Devonshire Quarrenden, Dutch Codling, Fearn's l'ippin, Forge, French Crab, Golden Noble, Gooseberry Pippin, Hawthornden, Hauwell Souring, Kerry Pippin, London Pippin, Nonpareil, Norfolk Bearer, Northern Greening, Sturmer

Pippin, Syke House Russet, Winter Pearmain, Yorkshire Greening. Apples (Dessert) for growing as Pyramids and Bushes -Ashmead's Kernel, Beauty of Kent, Braddick's Nonpareil, Cellini, Cornish Gilliflower, Cox's Orange Pippin, Court Penduplat, Early Harvest, Early Nonpareil, Knight's Downton Pippin, Golden Harvey, Juneating, Hubbard's Peurmain, Irish Peach, Mother, Newtown Pippin, Manx Codling, Lord Suffield, None-

such, Northern Spy, Reinette du Canada, Ribston Pippin.

APPLES FOR VERY EXPOSED SITUATIONS.—Carlisle Codling, K; Devonshire Quarrenden, D; Early Julien, D; Franklin's Golden Fippin; French Crab, K; Hawthornden, K; Kerry Pippin, D; Keswick Codling, K; Iondon Pippin, K; Manx Codling, K; Nonesuch, D; Summer Strawberry, D; Tower of Glammis, Winter Strawberry, D; Winter Colman, K; Yorkshire Greening, K.

CHERRIES FOR GARDENS, BEST TWELVE.—Early Purple Gean, D; Belle d'Orleans, D; Black Tartarian, D; May Duke, D; Black Eagle, D; Monstrous Heart, D; Bigarreau, D; Florence, D; Coe's Late Carnation, D; Kentish, K; Belle Magnifique, K; Morello, K.

CHERRIES FOR ORCHARDS .- Early Prolific, Black Tartarian, May Duke, Elton,

Buttner's Black, Kentish, Bigarreau, Mammoth, Late Duke, Tecumseh.

Currants.—White: White Dutch. Red: Cherry, Raby Castle, Red Dutch.

Black: Ogden's Black, Black Naples.

Figs for Walls .- Black Genoa, Black Ischia, Brown Turkey, Marseilles, Castle Kennedy. For Forcing: Black Ischia, Brown Ischia, White Ischia, Pre-

gussata, Lucrezia.

GOOSEBERRIES FOR DESSERT.-Red: Keen's Seedling, Red Globe, Rough Red, Turkey Red, Companion. Yellow: Glory of Ratcliff, Rumbullion, Leader, Yellow Champagne. Green: Greengage, Green Gascoigne, Turn-out, Hebburn Prolific. White: White Eagle, Queen of Trumps, Bright Venus, Hedgehog, Whitesmith, White Champagne.

Grapes for Walls.—July Muscat, Muscat St. Laurent, Esperione, Miller's Burgundy, Pitmaston Cluster, Royal Muscadine, Black Hamburgh, Chasselas Musqué. The last two require dry borders and good positions, or they will not ripen

their fruit.

GRAPES FOR COOL VINERIES .- Chasselas Musqué, Madeira, Muscat, Black

Champion, Black Hamburgh, Golden Hamburgh, Buckland Sweetwater.

Grapes for Heated Vineries.—Muscat of Alexandria, Bowood Muscat, Canon Hall Muscat, Cambridge Botanic Garden, Muscat Hamburgh, Barbarossa, Lady Downe's Seedling.
NECTARINES FOR WALLS.—Balgowan, Early Newington, Elruge, Hardwicke,

Rivers's Orange, Red Roman, Large White.

PEACHES FOR WALLS .- Small Mignonne, Early York, Early Grosse Mignonne, Crawford's Early, Royal George, Noblesse, Barrington, Walburton Admirable, Salway.

PEARS, THIRTY FOR GROWING AS BUSHES AND PYRAMIDS.—Alex. Lambre Bergamotte d'Esperen, Beurré Clairgeau, Beurré d'Aremberg, Beurré d'Amanlis Beurré de Rance, Eastern Beurré, Beurré Goubault, Beurré Superfin, Bon Chretten Broom Park, Conseiller de la Cour, Delices de Jodoigne, Doyenné Boussoch, Doyenné Defais, Doyenné d'Eté, Eyewood, Fondante d'Autumne, Forelle, Glou Morceau, Huyshe's Victoria, Jargonelle, Lonise Bonne of Jersey, Monarch, Prince Albert, Suffolk Thorn, Winter Nelis, Yat, Zepherin Gregoire.

Pears, Twelve very choice for a Small Garden (hardy).—Graham's Autumn Nelis, Glou Morceau, Jargonelle, Winter Nelis, Josephine de Malines, Easter Beurré, Doyenné d'Eté, Bonne Chretien, Louise Bonne of Jersey, Beurré

Rance, Alexandre Lambre, Monarch.

PLUMS FOR DESSERT.—July Greengage (wall), Denniston's Superb, Perdrigon Violet Hatif, Greengage (wall), Transparent Gage, Jefferson, Coe's Golden Drop (wall), Reine Claude de Bavay, Coe's Late Red, Blue Imperatrice (wall).

PLUMS FOR CULINARY PURPOSES .- Early Prolific, Early Orleans, Goliath, Vic-

toria, Diamond, Washington, Belle de Septembre.

RASPBERRIES. - Yellow: Yellow Antwerp, Magnum Bonum, October Yellow.

Red: Fastolf, Beelive, Carter's Prolific, Prince of Wales, Red Antwerp.

STRAWBERRIES, TWELVE BEST.—Black Prince, British Queen, Carolina Superba, La Constante, Elton Pine, Keen's Seedling, Rivers's Eliza, Oscar, President, Ingram's Prince of Wales, Stirling Castle Pine, Frogmore Late Pine.

GARDEN GUIDE FOR NOVEMBER.

Kitchen Garden.—Seakale grown for forcing should be taken up at once, and packed away in dry earth or sand, where it can be obtained during frosty weather, but where it will not be subjected to a temperature high enough to start it into growth. Take up a few of the best turnips, and store in dry earth, as frost sometimes melts them into a jelly. Parsnips and salsify may be left in the ground another month if not convenient to store away now. As for roots in general, the sooner they are taken up and properly stored the better. It is very important that all vacant plots should be ridged up to have the full benefit of winter weather. On dry sandy soils, peas and beans may be sown now, but it is a waste of seed to sow on wet soils, or where vermin abound.

Flower Garden.—Chrysanthemums in pots should be put under some kind of shelter, and if a border is appropriated wholly to these flowers, a canvas awning is essential to their full development. Many things will be found in flower now, if the weather is mild, such as Aster multiflora, fulvis, and elegans, Anemone Japonica, and several of the varieties of the English primrose. This is a good time to buy and plant hardy herbaceous plants, especially such as primroses, polyanthuses, daisies,

and other tufty growing subjects.

Greenhouse and Stove.—Whatever is to be kept in the plant houses during the winter, should be housed without any more delay. There may be no frost to kill tender things, but there will be rain and wind to injure them. Winter flowering subjects should have a special care now. In the greenhouse good places near the glass must be given to cyclamens, primulas, cinerarias, and the forwardest bulbs; but the advantage of warmth is rather to be afforded to such as have already made great progress without it than to compel growth from the very first. Therefore, do not unduly hasten anything; when a plant is already showing its flower-buds, it will bear forcing far better than when only just commencing growth. In the stove, dendrobiums, poinsettias, hyacinths, and euphorbias, will need a good heat and plenty of moisture.

Fruit Garden.—Plant early, and plant well. If the soil is poor, dig it over deeply and manure liberally. To mulch the ground after planting is always a good practice. Bush trees that are not subjected to the pinching process, will require to

be moderately shortened in, but severe pruning must not be thought of.

* * * Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons, the "Garden Guide" will be on a contracted scale this year.

TO CORRESPONDENTS.

LEICESTER GARDEN VASE. - A. B. S .- We had one of these in use during the past summer, and it has been much admired by all our visitors, and henceforth we shall recommend them as amongst the most useful and economical garden ornaments. Ours was painted a warm brown colour, and filled in with turf grass side outwards, and then filled up with moss, and kept furnished with pot-plants, which were frequently changed. Twice during the season the grass was clipped close, and it is quite green now. It would be a good plan, in the case of one of these vases being filled with soil, to insert crocus and snowdrop bulbs in the turf all round. A very hard winter might kill them, but as a rule they would no doubt flower well. It is quite unusual for Brussels sprouts to become variegated. It matters not how beautiful may be your plant, it is but a curiosity of no value, and the seed from it will probably not produce variegated plants. The hardy borecole is much given to variegation, and the form of the plant is favourable to its use for winter embellishment of the garden, and some of the varieties in cultivation are extremely beautiful. The sport of the Neottopteris is valuable if beautiful; not otherwise. From your description we conclude that it is a depauperated variety of no value at all. The defect in camellia catalogues is owing to the fact that they are all copied from the lists issued by the continental growers who supply the English market.

MILDEWED VINES.—J. E.—It does not follow that, because your vines have been affected with mildew, you should remove them. As soon as the vines have shed their leaves prune them, and burn the prunings; then strip away the old bark, and burn it; and lastly paint them all over with a mixture of sulphur, tobaccoliquor, and clay. Next year's growth and fruit will probably be as clean as any

the vines ever produced.

Forcing Strawberries.—Subscriber.—The principal points to be attended to in forcing strawberries are the following—To have plants from the earliest runners, and that have been well grown all the summer, and have plump crowns; to force gently, never driving them in a strong heat; to keep them very near the glass, in the sunniest part of the house; to give air as often as the state of the weather will permit; to keep them regularly watered, as, if they once go quite dry, they will never recover. In the Floral World for December, 1861, we published the best essay we have yet seen on forcing the strawberry. It was written by Mr. Sparkes, of St. Mary's Cray. We advise you to obtain the number, and carry into effect Mr. Sparkes's plan. The best sorts of strawberries for forcing are Lucas, Black Prince, Eclipse, British Queen,* Marguerite, President,* Prince Arthur,* and Sir Joseph Paxton. The best three are marked with asterisks.

Worms on Lawns.—H. L.—We are not at all favourable to the destruction

Worms on Lawns.—H. L.—We are not at all favourable to the destruction of worms on lawns. Frequent rolling destroys their earth casts, and they never do harm, and probably do much positive good. But to be rid of them is easy enough. Procure some fresh unslacked lime, and stir it up in water (rain-water is the best), in the proportion of a pound of lime to four or five gallons of water. Leave it a few hours to dissolve and settle, then water the lawn with it, and the worms will come out and die on the surface, presenting a somewhat inelegant spectacle. In making lime-water it matters not if the lime be thrown in without measure or study of proportions, provided it is allowed to become almost clear before using it, as the water will dissolve only a certain quantity, and when drawn

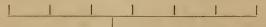
off more water may be put on the lime left, and so on again and again.

EVERGREEN SHRUES FOR A BORDER.—H. L.—Your border is bounded by a bed on one side and a lawn the other; no trees near, and the place cold, windy, and smoky. Hollies, ivies, Japanese privets, several kinds of tree box—excluding the Minorca, which is tender—Cotoneaster microphylla, Garrya elliptica, and Skimmia Japonica will thrive there. To give character a few coniferous trees might be inserted at intervals, such as hemlock, spruce, Lawson's cypress, red and white cedar, common yew, and the common arbor vitæ. Plant in the spaces between, for lighting up the front, a few rose bushes; such varieties as Bourbon Queen, Jules Margottin, General Jacqueminot, Fellenberg, Baronne Prevost, Louise Darzins, common China, and Anna Alexieff will answer admirably. As for hardy herbaceous plants, you may select almost at random if you give preference to showy subjects.

Roses on Manetti Stocks. - Acidalie asks if the Bourbon rose Acidalie requires any particular kind of pruning, for during three years that this rose has been grown on the Manetti stock it has never given a single flower. "Acidalie" writes from one of the best parts of Devonshire, where roses grow almost as luxuriantly as in the south of France, and adds this startling statement: "Some of the shoots on Acidalie, this season, are six feet long, stout, and well ripened, so that I cannot understand the cause of its failure." We really believe we can explain this cause in a word, that our correspondent does not possess Acidalie at all! Such is our conviction, and an explanation may be of some interest to many of our readers. Let us suppose that some plants of Acidalic on Manetti stocks were planted three years ago, that the Manettis formed suckers, that the suckers rose up and mixed with the shoots of Acidalie, and by degrees overpowered and killed them; what would be the result in such a case? Simply the conversion of bushes of Acidalie into bushes of Manettis. Now, we fully believe this to be the ease, for Acidalie is one of the most freely-flowering roses known. It seems impossible that it should grow freely in South Devon, and give no flowers during three years. Nor are we hazarding a mcrely inventive supposition. We have seen roses change to Manettis scores of times, have watched the process through all its stages, and we ean call to mind a case which occurred not far from where this is written. An amateur put himself to considerable expense to plant a bed of the newest roses, all of them being on Manetti stocks. He pruned and tended them according to the best of his ability, but in the course of three years he found the leafage to be alike all through the bed, and there were no flowers. An experienced cultivator happening to see this bed, and hear the story of its decline, laughingly summed up the matter with the words, "Why, you have nothing but Manetti here; do you not observe that the leaves and shoots are all alike; there is not a purple shoot or reddish leaf in the whole bed, but pale green and bluish green leaves, the leaves of Manetti, and nought else." It is a moot question whether Manetti will make suckers if the buds are carefully cut out before the cuttings are planted; but it is no moot point whether roses on their own roots are not far preferable, even at four times the price of the same sorts on the Manetti stock. One of our principal objects in publishing the "Rose Book" was to promote the propagation of own-root roses in place of roses budded or grafted on any kind of stock, and now it is becoming known amongst amateurs generally, that every rose worth growing may be obtained on roots of its own. If this explanation of "Acidalie's" case is the correct one, the only safe mode of procedure is to buy and plant again.

Thrip on Greenhouse Ferns.—H. R.—The first step towards eradicating thrip is to cut off and burn the fronds that are most affected; this gets rid of quantities of eggs. The next step is to fumigate with tobacco. This must be done with care, and should be entrusted to a person experienced in such matters. If you cannot obtain the aid of a person who can be entrusted to fumigate, you must resort to the use of tobacco water. Use the best shag tobacco, to one ounce of which add a gallon of boiling water. When cold, add one ounce of black sulphur, stir it up, and when clear apply it with a camel's hair pencil, taking care to wash it off with the syringe two hours afterwards. Repeat these proceedings till you are free of thrip. To prevent vermin getting a hold upon ferns, keep the atmosphere of the house constantly moist, and avoid as far as possible a high temperature. Excess of heat and deficiency of moisture tend to promote all kinds of vermin amongst plants.

VIRGINIAN CREEFER.—A. B.—One plant is sufficient to furnish strong rods every four feet over a breadth of a hundred feet of wall. We have such a plant in our care; it is planted on a wall which is well furnished with ivy, and the upright rods are trained up at every six feet, and at the present time the whole extent of the wall is sheeted with red leaves on a dark green ground. The annexed scheme of printer's lines will indicate the relative positions of stem and



branches. So your variegated elder is really beautiful? We have seen several but slways thought them ugly.

BORDER FOR ROSES.—A. B. S.—Your border, with wall four feet high, sheltered from north and east, and in the delightful climate of Torquay, is just the

place for tea roses. These we should prefer to grow on briers of three feet, with a few, such as Devoniensis, on their own roots, and some of the showiest hybrid perpetuals on their own roots to give rich colours. We need not give the names of varieties, as our pages are studded with selections. On the wall itself you might train a few choice things that are commonly too tender for our own climate, such as Escallonias, Desfontania spinosa, Pernettya mucronata, Berberidopsis corallina, Euonymus latifolia aurea, and other very choice subjects. But you ought to make the border a foot wider if the walls are to be covered.

SIX GOOD CAMELLIAS .- A. B. S .- Valtavaredo, Mathotiana, Marchioness of Exeter, Cup of Beauty, Alba plena, Donckelaari. Your old plants that have grown too large may be cut back in February, and in the February following they may be turned out, reduced at the roots, and potted back into smaller pots. By this course of procedure large camellias may be made into small ones. But perhaps a better course for you would be to plant them out; the probability is that they would thrive

as merrily as laurels or junipers.

CHERRY AND PLUM TREE GRAFTS FAILING.—A. B.—The cultivated varieties of cherries and plums are for the most part earlier in leaf than the wild varieties they are usually grafted on. Cultivation has rendered the varieties precocious in their movements. To succeed, therefore, the scions should be retarded by heeling in, and should be put on early. The safest procedure is to bud them, and in all the nurseries budding is the customary practice. The success of grafts of apple and pear put on the stocks on the 1st of May does not surprise us. We have frequently recommended late grafting of these, and have seen late grafting practised successfully in the Kentish orchards, and elsewhere. Stone fruits are far less accommodating, owing, perhaps, to the gummy nature of their outer wood layers.

HAYS'S CONSTANT STOVE .- Several Correspondents .- The agent has disappeared, leaving no address, a parallel case apparently to the Waltonian business.

PLANTS TO EXCHANGE.—An amateur having a few dozen of strong plants of Gesneria zebrina, and others, more than she requires, would be pleased to exchange them for a Lilium giganteum, Variegated Aloe, or any attractive thing in that way. Apply, in the first instance, to "Flora," the post-office, Marlborough,

Wilts.

LAPAGERIA ROSEA.—In November, 1864, I sent you an account of my attempt to grow Lapageria rosea in a small way, but forgot to give the dimensions of the box in which it grows. It is 3 ft. 6 in. long, 1 ft. 7 in. broad, 2 ft. deep. The plant is now in vigorous health. Five or six shoots have run up to the top of my small conservatory, and are obstinately resisting the attempts of my gardener to train them sideways along a trellis. There are sixty-nine flowers and buds now hanging on it, and strong young shoots coming up constantly. For more than a year it has been watered only like the other plants, with a watering-pot, or syringed. Could I get one of the shoots to root by making it grow through a flower-pot placed on the soil of the box? And is there danger of the plant dwindling and dying by and by for want of more room for its roots? You have said that cuttings do not grow, and the flowers on my plant never go to seed .- H. R. [You may easily obtain rooted pieces of the Lapageria by layering on the bed or passing them through pots. We have certainly objected to plants produced in this way, and still hold to the opinion, which is based on much experience in the cultivation of this plant, that seedlings are by far the best. But as you evidently wish to raise a few from your own plant, and it does not give you any seed, go on with the layering, and hope for the best. We have seen some very pretty specimens three feet high in pots, and covered with flowers that were grown from layers by Mr. Tanton, of the Epsom Nursery. Your plant will want refreshing with new peat. When it is quite at rest, turn it out, remove some of the soil from the roots, prune the roots back moderately, and replant in good turfy peat, with plenty of silver sand added. At the same time give it a larger box if you can.]

PROPAGATING RHODODENDRONS .- P. B .- As you are acquainted with the process of grafting, we have but to mention that rhododendrons are largely propagated by layers. These are easily made; the shoots are bent down, and slightly cut and pegged firm; the month of February is the best time to operate. Water from the gasworks is a good wash for apple-trees, but we prefer a mixture of salt and water, gasworks is 300d used rather strong, and quite hot. This completely eradicates American blight. If plum-trees are affected with blight, brine is not so good as a mixture of strong

tobacco water and soft soap, with clay added to make it thick.

THE FLORAL WORLD

AND

GARDEN GUIDE.

DECEMBER, 1867.

THE CHRYSANTHEMUM IN 1867.

HE Exhibitions of the past month have been fully as attractive as in any former season within our experience, though the year 1867 must be considered one of the most unfavourable for the Chrysanthemum. 23rd of November, when we hastily pen this article that our readers may have what we hope may prove useful information, several of the most noted collections of these flowers are not yet in full bloom, and some of the best specimen plants in the country will scarcely bloom at all this season. We have twice visited Mr. Salter's exhibition, and have not yet seen the flowers of all the seedlings he intends to distribute next year. In many cases the buds were still hard, and scarcely coloured. Yet we repeat with pleasure that the exhibitions of the past month have been upon the whole The flower itself is advancing; there is more skill bestowed upon it; the exhibitions have everywhere been improved by the association of fruits and fine foliaged plants with the flowers -a feature we are proud to know that our labours have promoted; and there are more cultivators of the flower than there ever were before; and so at the exhibitions there have been spirited competi-

The lateness of the flowers everywhere is no doubt owing to the unfavourable weather which occurred in the latter part of July and throughout the month of August. The damp and cold, which caused the potato-disease, seriously affected these plants, which were then forming their embryo flower-buds, and should have been in the fullest vigour. Their proper flowering season was far from unfavourable, for we have passed through a bright and pleasant autumn. Most of our readers will be able to remember that many times we have had sharp frost ere the present period of the year; but we have had nothing of the sort to check the flowers this season, and we attribute their backwardness to the check they suffered in the latter part of the summer, when their growth was nearly completed. And if this view of the case is correct, it affords a lesson of practical value. To have these splendid flowers in perfection in No-

vember, we must do justice to them through the summer. It is well known that there are many gentlemen's gardeners who are skilful in almost everything they touch, save and except the chrysanthemum. To the employers of these persons this is sometimes a mystery; yet it is easily explained by the fact that there is so much to do during spring in propagating bedding-plants, that the chrysanthemums are started late; and so much to do during June and July to keep beds in order, that the chrysanthemums are half starved when they ought to be well fed; and so the end of it is a failure.

During the past month, we have visited gardens and exhibitions, and have seen chrysanthemums under many different aspects. Her Majesty's Conservatory at Buckingham Palace has been marvellously gay with these flowers, Mr. Wyness, the able head gardener there, having always taken an interest in this flower. The system pursued by Mr. Wyness during the past year will just meet the case of those gardeners who cannot give this subject the attention it ordinarily requires for exhibition purposes. Mr. Wyness planted out nicelyrooted pieces on a well-prepared, sheltered border in the spring, and they almost took care of themselves until October, when they were taken up and potted, and put in the conservatory to flower. Of course this mode only insures long-legged plants with a few huge flowers on each—say half-a-dozen or so; but if these plants are grouped, as in the case before us, with camellias, palms, ferns, and other handsome subjects, the flowers shine in all their proper glory, and the gauntness of the plants producing them is concealed from the spectator. A finer display than that at Buckingham Palace this season we have not seen, though we have seen everything else of the kind to be found in or near the Metropolis.

Another point of some importance arises out of the question, How much heat will they bear? When at Mr. Salter's a few days ago, the ventilators were open; the cruel cold wind was blowing through so that there could be no pleasure in the "winter-garden, and there was no aid of heat to mitigate the asperity of the chill November air. Now, Mr. Wyness kept the conservatory at a minimum of 60°, and allowed the temperature to rise during sunshine to 70°, and there was not a leaf browned, or a flower weakened in colour thereby. Mr. Crute, one of the most enthusiastic amateurs of this flower, had a most beautiful display in a temporary house constructed for the purpose as an "annexe" to his conservatory, and here but little air was admitted, so that viewing the flowers was not attended with inconvenience or discomfort. Let it be understood we do not advocate any forcing of this flower-for the fact is, forcing is injurious; but, on the other hand, we are fully satisfied that there is no necessity for treating it as if an Arctic blast would help the flowers; and, to make short of it, we protest that the house in which they are displayed should be made as comfortable as possible for visitors; and if a little heat is necessary to that end, it should be employed without any foolish fear of spoiling the flowers.

In criticising and comparing plans, we have observed in several instances this season that the plants that have refused to flower have been in larger pots than those that have flowered satisfactorily;

of course, in a season unfavourable to growth, over-potting would be fatal to the bloom by keeping the plant sappy and active in the formation of suckers, and the advantage of somewhat restricting the

root-room is apparent.

The best trade exhibition of these flowers in the present season was Mr. Forsyth's, at the Brunswick Nursery, Stoke Newington. Mr. Forsyth is a bond fide specimen-grower, and one of the mainstays of the metropolitan exhibitions. His masterly treatment of the plant is such that it assumes any form desired in his hands, and at the present time he has some dwarf, round-headed bushes that are remarkable for their perfect finish and the splendour of their flowers. Every conservatory in the land, if flowers have any proper place in it, should contain just such specimens as now adorn the show-house at the Brunswick Nursery, for, after all, regular attention has much more to do with ultimate success than any special

or peculiar skill.

The increasing popularity of this flower is as much due to its actual advancement as to the admirable examples of cultivation which are annually placed before the public. The highly-finished incurved flowers are not sufficient for a display at home; we want more variety in the conservatory than they afford us. We have then to turn to the reflexed and tasselled kinds, and here we meet with elegant forms and splendid colours. The two most brilliantlycoloured varieties known are Dr. Sharp, a crimson flower, and Chevalier Domage, a splendid yellow. So we may go on, finding abundant variety if we will not insist on incurved flowers solely, and the new Japanese varieties enlarge the sphere of selection, so that every taste may be gratified. Pure reds and pure blues we cannot expect to obtain, yet we come very near the first in such varieties as Firefly and Madame Godillot; and there are some good purple and lilac shades to afford fine contrasts to the many whites and yellows of fine quality which we have in this class of flowers.

In the course of our peregrinations we have made notes on the

following new varieties this season :-

Dr. Sharp.—A large reflexed flower of a brilliant maroon red or crimson colour. One of the finest for decorative purposes.

Mrs. Sharp.—An incurved flower of the finest quality, the colour

rich pinkish rose.

Mrs. George Randell.—A grand incurved flower of the purest white, which, as it becomes old, acquires a delicate tinge of lilac on the outer petals.

Cresse de Beauregard.—A Japanese variety, the flower of an immense size, colour delicate rose lilac with yellow disk, exceedingly

handsome, and moreover curious.

Madame Godillot.—A Japanese flower of the most curious appearance, resembling a Medusa, or star-fish, much more than any ordinary flower, the outer rays being like twisted wires; colour bright orange red.

Bronze Jardin des Plantes.—This is a bronzy variety of the best

yellow chrysanthemum known.

Baron Beust .- A large incurved flower of fine quality, the

colour chesnut with gold points outside, but on the inner side the

petals are reddish chocolate.

Lord Derby.—A superb large incurved flower, in the way of Prince Alfred, but quite distinct; the colour is rich dark claret turning over silvery purple; first-rate.

Captivation.—Not incurved, and like a dahlia, colour pucy pink with tinge of orange in the centre; a lively pleasing variety, well

adapted for the conservatory, and to grow as a specimen plant.

Golden Orb.—Large incurved, clear canary-yellow.

Golden Thread.—A Japanese variety; a large, curiously quilled flower, looking as if formed of stiff golden wires set on a central disk, very early, and highly decorative.

Aurantia.—A Japanese variety, buff-yellow, handsome.

Tarantula.—A Japanese variety of remarkable form, more nearly resembling a gigantic spider than a flower of any kind; the wire or thread-like florets radiate from a button-like disk; they are at first yellow, but afterwards change to purple.

Meteora.—A Japanese variety, of a fine orange colour.

Tycoon.—A Japanese variety, the flower very large, colour fine cinnamon inside, the back golden.

THE VILLA KITCHEN-GARDEN.-No. VI.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.

HE BROCCOLI.—This is a subject that requires a deep rich soil. This is especially the case in small gardens, as usually the cultivator is not able to get them planted out so early as those who are favoured with more space. Hence the necessity of liberally manuring and digging the ground in small gardens, to promote a speedy growth to make up for a deficiency of time, as they generally have to follow an early summer crop; whereas with a duke's gardener a quarter is very often set aside during winter for their special benefit, and remains unoccupied until the end of June. But as very few villa gardens have sufficient space to admit of this being done, some special preparations will be necessary for the reasons above given. All the hardy winter kinds delight in a strong, welldrained soil; but the more tender varieties, such as the Walcheren, Snow's Winter White, and Adams's Early White, should be favoured, if possible, with soil of a lighter and drier texture, as their season of use occurs at a time when frost and rain generally prevail; and the more shelter that can be secured them, the more satisfactory the result, in the majority of seasons, will be. When I was occupied in the management of a villa garden, I never set aside any ground for these subjects, except for Snow's Winter White, and these I always endeavoured to get planted out as early in June

as I could. All the other varieties used to follow such crops as early potatoes and peas, when, with liberal culture in a rich soil, and copious drenchings of sewage water up to the end of September, I

used to get them very fine.

The first sowing of the Walcheren, Snow's Winter White, and Adams's Early White, should take place about the end of March, on a warm south border, to be carefully guarded against birds, and to be occasionally watered during dry weather, and to be diligently hand-weeded from time to time, as the weeds appear. Another sowing should be made, about the third week in April, of such sorts as Knight's Protecting, Chappel's Cream, and Dilcock's Bride. These will come into use in the early spring for successional crops; while for still later crops the middle of May is in good time; and plants raised from this sowing will be ready quite as soon as there is ground to receive them. It should be remembered it is much better to put out a young thriving plant than to have those that have been starving each other in the seed bed for some weeks past. The best late varieties are Carter's Champion, Cattel's Reliance, and the Willcore Late White. This last is an old subject on the board, but not yet beaten when obtained true. All these later sowings require exactly the same treatment as that recommended for the first.

To secure strong plants for planting out, and to have them stout and sturdy, as they ought to be, they should be pricked out into another piece of ground, as soon as they are about three inches high, placing them about three inches apart each way. Plants so treated

are far preferable to those left standing in the seed-bed.

Those of the first sowing should be planted out about the middle of June, and those of the next a month later, while the last ought to be in their permanent quarters not later than the 12th of August. The two first will be able to take care of themselves, if the soil has been properly prepared. But besides this, the late ones will require extra attention in watering, and, when well established, a good dose of manure or sewage-water once a week will help them amazingly. What we want for those late spring kinds is a close, compact plant, and not those huge things more resembling trees than broccoli plants, as when they come into use we do not want heads the size of a 4lb. loaf. Such monster subjects may suit an exhibition table, but they would be no credit to a gentleman's dinner; and if I had the judging of such things, I would soon teach the exhibitor that I valued more those that were not larger than a breakfast cup; and in this matter all the cooks will agree with me.

The after-culture of these plants is to keep the weeds down by a constant stirring of the surface, and, as autumn approaches, all the yellow leaves should be cleared away. On a dry day, early in November, take out a spadeful of soil on the north side of each plant, and then gently bend down the plant with its heart pointing northward, until its heart is about six inches above the ground level; go on with the next precisely the same, filling up with the soil that is taken from the next plant, until all is completed. This is the best safeguard against frost of any practice I have yet tried. I

had almost forgotten to add, these are things that must not be overcrowded by thick planting; the Walcheren will do very well at two feet apart each way, but all the others should not be less than two feet six inches.

A second sowing of the Walcheren should be made about the middle of May, to provide for a supply through the autumn. If two or three plantings are made from this sowing, the supply may be kept up until Christmas, if the frost does not exceed 10°. This is the most useful of all the autumn broccolis known, and to the kitchen-gardener one of the most valuable acquisitions of our time.

THE CABBAGE.—Notwithstanding that this is a vegetable considered by some as a common subject, inquiries frequently are made as to the best mode of culture, etc., and as this is most generally the case amongst those with small gardens, I am sure the subject, when treated in a practical manner, will be interesting to many readers. I may preface the remarks I have to make with some general information that will be applicable to all. In the first place, there is no kind of soil but what will grow the cabbage with tolerable success, if the ground is deeply dug and liberally manured. The greatest enemy to its well-doing is when it follows on the same piece of ground a similar crop; it is therefore highly essential that the cropping of the garden should be so arranged that none of the Brassica tribe follow each other; in fact, an interval of twelve months should elapse between two green-crops being upon the same piece of land, and they all follow best such crops as onions, peas, or potatoes. Many strong and deep loamy soils will grow the cabbage to great perfection with only half the manure required upon a soil of a lighter texture. Many sandy soils, and those of a peaty nature resting on gravel, are admirably adapted for very early crops in spring; but for later supplies they must have a high state of culture, or as the hot weather comes on, they will be more like leather aprons than tender-hearted cabbages.

There are but few months in the year when cabbage-seed may not be sown to advantage, at least by those who like them young and crisp. Beginning at the end of March, a pinch of seed should be sown every month, until October. Many old gardeners, it is true, only sow twice a year-in May for collards, and in July for spring cutting; but then they have only old stools to cut from half their time. When a little seed is sown in early spring, and followed up until autumn, there is not a week from May to Christmas but what will furnish from the garden a dish of tender young cabbage. It is not necessary to plant out large numbers; a few from each seed-bed put out from time to time as the plants attain the required size, according to the demands of the house, will suffice. In respect of the stumps of those that are cut immediately, a safe plan is to pull them up as you want them, and take them to the rubbish-heap to cut out the heart. This insures that the old stools are not left to exhaust the soil after they are no use. I am aware that this advice is contrary to the practice of many, as they leave them upon the same spot for sixteen or seventeen months, simply to get a few sprouts in the autumn and spring, whereas three crops of young cabbages, about double the bulk in produce, might be had from the same space of ground, though not from the same spot, to say nothing about the exhausting of the soil which takes place when they occupy one spot so long, and which renders it unfit for any other crop until it is heavily manured. The principal sowing is that which gives plants to stand the winter to come into use early in the spring.

Soils and localities differ as to when is the best time to sow the seed, to insure that they do not run to flower instead of hearting. Generally speaking, the 21st of July is about the time; for myself, I always make a practice of sowing at that time, and also a fortnight later. From these two sowings I plant equally, so that if the first deceives, the second is sure to be safe. But when the first sowing stands good, they are always the earliest in hearting. The seed should be sown in beds when the soil is moist, and carefully protected from birds; the plants to be pricked out three inches apart in another piece of ground as soon as they are three inches high. When the plants are large enough, put them out, on a dull, damp day, two feet apart each way, for all the larger-growing varieties; while such as the Little Pixy and the Rosette Colewort will do at fifteen inches each way. Water after planting, if the weather sets in dry, until they are sufficiently rooted to take care of themselves. Keep the hoe constantly amongst them on fine dry days, and draw some earth up to the stem after they have been three or four weeks planted.

The best summer and autumn varieties are the Sugar Loaf, Little Pixy, and the Rosette Colewort; while for spring, the Matchless, Cattel's Reliance, and Shilling's Queen are the best known to me. The red cabbage for pickling should be sown the first week in August, pricked out into a bed six inches apart to stand the winter, to be finally planted out the March following. They should have extra strong soil, and be not less than three feet apart; if extra large

heads are required, four feet would not be too much.

THE RASPBERRY AND BLACKBERRY.

ORD BACON circulates the doctrine that it is best to speak from our own experiences; very well, let me speak from mine. If you have the least idea next season of eating raspberries in the garden, be sure to plant a row of two or three (or more) different sorts

beside some by-walk, or in some cool and rather shady retreat. You may have your dessert kinds in the open quarters with other fruit, or with cabbages and winter spinach if you please; but for eating on the spot there ought to be a few stools so planted that those who walk may eat, and that without having to stir one step from the proper and ordinary pathway. Of course this is easy enough, and yet in making arrangements for this season's planting you might not think of it, and the hint may be at least worth attention.

There are some fruits that are undeniably delicious, yet you are soon done with them. Witness Eugenia ugni: is it not most richly flavoured, and yet would you not like to see the portrait of a man who had eaten at one turn and as a treat the small quantity of half a pint of them? Well, coming back to raspberries, I must say I think them the best in existence for eating as gathered, and invaluable too for the more formal but not more enjoyable dessert.

There is some fly that has a keen scent and an epicure's palate. It selects the blossom of the yellow raspberry for the deposit of its eggs. There the grubs are produced, and take up their abode in the berries, and by the time those are ripe the grubs are ripe also, and ready to assume the pupa condition in the earth, unless they find their way with the fruit to some other destination less suited to their idiosyncrasies. There is no cure for this; you can only throw away all infected berries; but try and remember next summer that at planting time you were warned of the liability to which rubiophagists are exposed when indulging in white or yellow raspberries. There is no red raspberry to equal for the dessert the old Red Antwerp, which has about fifty synonymes, the principal being Knevett's Antwerp, Late-bearing Antwerp, Howland's Red, and à Gros Fruits Rouges. Whenever you find that a fruit or vegetable has many synonymes, your next anxiety should be to obtain it, for it is sure to be first-rate; it is its excellence which tempts people to pin their names to it. As respects aliases, then, fruits and vegetables differ from men and women, for, with the latter, the more

aliases they have the less we care to trust them.

When the cultivator of raspberries desires only to have a fair supply of fruits adapted for culinary purposes, such as making currant and raspberry pies, raspberry jam, and so forth, a few of the best red varieties only should be planted, and the best of these are Red Antwerp, Fastolf, Prince of Wales, and Vice-President French. If I had a family of fifty, or say a school consisting of hundreds of young appetites to provide for, I should not care for any besides these four; but I would have no less, long experience having taught me never to be dependent on individuals, whether vegetable or human. I noticed three years ago that of forty-three sorts planted, only one did any good; the rest were burnt up by drought, and having no water at all artificially—for they were a long way off in a piece of rented ground-they had enough to do to make a few wretched canes, and made no fruit at all, though planted in such style that if the season had been moderately rainy they would have done wonders. It so happens that the sort that produced a tolerably good crop was the very prolific Fillbasket, which is certainly the best market raspberry, but, as being deficient of flavour, not good enough for private families, except when no others are to be had. If you are about to plant, you may add this if you like, but you must remember that the remark just made bears upon an exceptional season, and an exceptional condition of things; the four named above will suffice for ninety-nine in any and every hundred gardens.

The true old Red Antwerp is not so easily obtainable as some

other sorts. The true sort has nearly smooth canes, which are tall and stout. There is a variety of it called Round Red Antwerp, the fruit of which is rounder and better flavoured, but it does not bear so freely, and the slight advantage of superior flavour is overbalanced by the disadvantage of its comparative unproductiveness. Fastolf may be more easily and truly obtained than any known raspberry; it probably does duty for a great many sorts in places where they are more accommodating in spirit than in capability, for it suckers freely, and is so good in habit and quality, that to have it under some other name is more a vexation than a wrong. Prince of Wales, raised by Messrs. Cutbush and Son, of Highgate, is as good as any raspberry known; it produces strong whitish canes, very few suckers, and the fruit-of which there is plenty-is large, handsome, and has a fine, lively, piquant flavour. Vice-President French has brownish canes, a plentiful leafage; the fruit is large, the colour deep dull red, the flesh very juicy and rich. The jam made from this variety has a delightful bouquet, and in all cooking operations where raspberries are employed, this douce ally will be found to place himself happily en rapport with any of the fruits that usually go with raspberries. I could tell you of other good varieties, but there would be no advantage in doing so. Carter's Prolific is excellent in every respect, but no better than Fastolf, and sometimes not so good. It is very prolific of suckers, but that is, as a rule, no advantage to a private grower, to whom generally the suckers are a vexation when they rise like forests, for the thinning is pretty sure to be neglected till winter; and so, instead of a few stout strong canes, there are myriads of thin weak ones. If you want to exhibit, grow Barnet, which produces a very large and handsome, but flavourless, berry; grow also Cushing for its brilliant colour; Franconia, which is extra handsome, and also has a lively acid flavour, quite distinct from the tame sweetness common to red 'raspberries; Large Monthly for size and late bearing—this comes in well for the autumn shows. The Beehive is a good one.

The mention of the Large Monthly reminds me that the race of late raspberries has been greatly improved by the accession to the lists of October Red and October Yellow. These are also known by the names Merveille des Quatre Saisons Rouge, aud Merveille · des Quatre Saisons Jaune. They are the best of the late-bearing varieties, and of great value in gardens where fresh raspberries are in demand so long as they are obtainable. Indeed, the pity is that so few persons will take the trouble to secure a succession of the best fruits, but, instead, have during the height of summer a glut of a few kinds, and after that no more. How much better it would be to have the table supplied with fresh bush fruits till the middle or end of November. Both raspberries and currants might so be had if but a few changes were made in the ordinary routine of selecting and planting. To grow these late kinds of raspberries, you must not trust to canes of the preceding year. They bear their best fruit on canes of the season. Therefore, the way to manage them is to cut them down to the ground in March. In the month of May the young suckers must be thinned to a foot apart, and as the season

advances they will produce fine large berries in plenty, and if the season is mild will be in bearing till the end of November.

There are a few varieties of raspberries that merit the special attention of those who take more than an ordinary interest in their fruit gardens. The Summer Black was raised half a century ago at Netherfield, in Essex. It is a hybrid between a blackberry and a raspberry, the fruit being purple, and the flavour partaking both of the raspberry and the blackberry.* This is a fruitful and beautiful variety, producing canes of immense strength, dark in colour, and a leafage that, like the fruit, combines the peculiarities of both its parents. Mr. Rivers has cultivated this largely, and from it raised numerous seedlings, some of which are of great value. The Autumn Black is one of these. Mr. Rivers describes it as the fifth generation from the Summer Black. The fruit of the Autumn Black is of excellent quality, dark purple in colour, and it is in good bearing till quite November. It has this peculiarity, that it produces scarcely any suckers, and hence has to be propagated from seed. By pegging down the shoots it might, no doubt, be increased in a more certain though less rapid manner; but the seedlings are, I believe, generally true, so that there is no reason why this fine hybrid should not be more generally known and appreciated than it is.

The Americans have presented us with several species and varieties of Rubus, but they do not appear as yet to have succeeded in this country. The best of them is the Lawton Blackberry, also known as New Rochelle and Seacor's Mammoth. It is of immensely strong growth, and produces an abundance of large, oval, jet-black fruit, the flavour of which is very agreeable. Had we not in our hedges a species of Rubus, which is so fruitful and so good that every family in the kingdom might have a share of its produce, we should be glad of these American importations, but having our own blackberry (Rubus fruticosus), we scarcely need occupy our limited and highly-rented garden grounds by cultivating blackberries in

competition with the hedgerows.

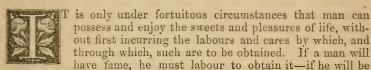
The habit of the raspberry is to throw up from the root a certain number of shoots, or, as they are called, "canes." These grow one year, the next year produce fruit, and after the fruit has all been ripened they die, and are succeeded by another lot of canes that were growing while those fruited. To prune the raspberry is therefore a simple affair enough. In autumn or winter cut away the dead canes, and thin those that are to bear the next season to four or five to each plant or "stool." It is well, also, to shorten these canes according to their strength and the nature of the variety; five feet may be considered a sufficient length for the strongest canes, and under the most favourable circumstances. Whenever raspberries are taken up, it will be found that their roots run freely in all directions very near the surface; in fact, after a few years, the soil of a plantation of raspberries becomes a complete felt of fibres. From this we learn that to dig amongst them must be very injurious, and in practice the spade should never enter the ground among rasp-

^{*} It is said to be a hybrid, but I doubt if the raspberry and blackberry have ever been actually crossed either way.—S. H.

berries, except it be for the express purpose of rendering them barren the ensuing season. The soil in which they thrive best is a deep, fat, retentive, and damp loam. In the first instance, the soil should be well manured, and in the month of February in every succeeding year a thick coat of half-rotten dung should be spread over the ground, but it must not be forked in. Strong-growing kinds are usually planted in groups of three canes, each four feet apart. I prefer to put in single canes, and allow them to form good stools, each complete in itself. A crop of cauliflower may be taken off the first season, and after that there should be no more supercropping of the ground.

S. H.

PRESERVATION OF GREENHOUSE PLANTS IN WINTER.



rich, he must not sit idle-if he should be born to possessions, he will not be exempt from the care of preserving them from encroachment; so it is with those who would enjoy a garden and flowers; they must rear them, and tend them, and preserve them during the winter from the encroachment of enemies, to which they are subject to fall a prey if uncared for; these are frost and damp, to which we may add drought and darkness, the two former being far more destructive to the majority of plants than the two latter, the last-named being so only when in an excessive degree, that is to say, to plants in a state of rest during the winter months. In order, then, to assist our readers with hints for the preservation of their plants from the above-named enemies, it will be well to classify some of the more common and generally cultivated greenhouse and bedding plants, leaving them to modify the instructions according to their means of carrying them out, for, in order to accommodate the number and various habits and characters of what we now cultivate as bedding and greenhouse plants, many impromptu situations may be made temporarily available as auxiliary to the greenhouse or pit. As the greenhouse will probably be gay with Ericas, Camellias, Cinerarias, Violets, Cyclamens, Lachenalia, Chrysanthemums, Correas, Primula sinensis, Tree Carnations, Mignonette, etc., with which must be associated other plants in free growth, or approaching a flowering state, as Tropæolums, Acacia, Daphne, Cytisus, Veronica, Chorozema, Azalea, etc., all of which will require all the light the dull days of winter will afford, with a temperature from 5° to 15° above the freezing-point, also a moderate amount of water at the root, but none overhead. It will also be necessary in dull weather to sometimes make a fire to dry up damp, in order that the flowers may not become mouldy; observe, however, to give air at

the top of the house at the same time. In frosty weather use fire as sparingly as is consistent with keeping the frost out, otherwise plants may become drawn. We are supposing that a pit is at hand for the preservation of the store plants for the flower garden, such as verbenas, petunias, young geraniums, etc., which are first struck off and hardened for a few weeks under a south wall, if not, a few shelves may be placed upon brackets, or suspended from the roof rafters, a few inches from the glass, for their accommodation during the winter, and in summer may be taken down and stored away. Most of the geraniums in such a situation would stand almost through the winter without water; but other things must be frequently examined, especially if standing thickly in their pots, to see that they do not suffer for want of water. The herbaceous calceolarias and the fancy geraniums will also do well upon such a shelf, but the former must sometimes be sprinkled over their foliage, as they do not prosper so well in any situation as a cool pit. But to follow out our supposition that a pit of some kind is at hand, if only a turf pit, made of peat sods, with waterproof lights, and a good dry drainage at bottom, which may be effected by filling in with a few inches of broken bricks, charcoal, or dry cinder-ashes, or small coke, on which to place the pots containing the cuttings. In such a structure the great enemy to combat is damp. Let, then, the lights be tilted every fine day. Frequently look for damp or decayed leaves. If any plant requires, take it out to water, and keep it out until the surplus water is drained from it. Should any worms be seen to work in any of the pots, lose no time in turning out the plant to find them, as they obstruct the drainage and sour the soil; and should the mildew appear in the form of white spots upon the foliage or stems of the plants, be also equally expeditious in dusting a pinch of sulphur over the infected plant. In frosty weather make sure by dry coverings to exclude frost; but should any doubt exist on that head when the frost leaves us, be in no haste to expose the plants to light; it is much safer to give air by degrees before stripping off the covering, as plants will recover from the effect of slight frosting whilst kept in the dark, whilst one gleam of sunshine would be fatal. Having disposed of the flowering and growing plants in the greenhouse, and the young stock, either in a pit or upon shelves, there remain two other classes of plants to provide for, namely, the greenhouse plants for a state of rest, with which we shall associate large plants used in flower-garden decoration, and plants requiring a little warmth to bring out their flowers before carried to the greenhouse. The former of these may be kept under any temporary shelter until the very verge of winter, such as an open shed, in front of which may be suspended mats, tarpaulings, etc.; but the cultivator must, at the same time, be prepared with the means of protection ready at any moment that serious frost sets in, and, as every place offers some special and distinct means, differing from another, we can only offer general hints, leaving the details to circumstances. A shed or out-house with close-fitting doors and windows, especially if built with hollow walls, and having reed, or some other non-conducting substance for a roof, would protect many plants for a considerable period, and this would be, in a great measure, according to

the degree of light it admitted.

In mild weather the doors and windows might be thrown open, and in frosty weather a small stove or fireplace might be used with moderation, though of course the plant would be best without it, if the entrance of frost can be otherwise prevented; or part of a stable, or loft over a stable, where there is considerable warmth below, might, by the assistance of short, dry hav, placed between the pots and plants, be made available for the purpose. The plants which it is possible to keep by such means are old Fuchsias, Hydrangeas, Brugmansias, Myrtles, Tea Roses, Agave, Agapanthus, old scarlet and other Geraniums, in pots, vases, or fancy boxes; also the old plants taken from the borders, and packed thickly in pots or boxes to be potted off in spring. These latter should be taken in before frost strikes the bark of the stem, and all leaves larger than a half-crown should be cut off, with all straggling shoots. Fuchsias should be left unpruned until the approach of spring. Myrtles or Neriums should be kept from dessication by small allowances of water occasionally, if required. Deciduous plants and geraniums will scarcely require it. The other class of plants I have alluded to are such as require a closer atmosphere than that of the greenhouse, with, if possible, a little bottom-heat, in order to bring them into proper trim for taking their place in the greenhouse or drawingroom flower-stand, for the earlier these can be had in flower, the more will they be appreciated. They consist of all the sorts of Dutch bulbs, Dielytra spectabilis, Lily of the Valley, Musk Roses, Deutzia gracilis, or any varieties of hardy shrubs that may have received proper treatment during the past summer to fit them for a slight forcing. These, of course, can be brought to perfection at almost any period of the winter, where a proper forcing pit exists: but supposing that we are writing for those with limited means only, we will presume that a melon-pit only is available, without hot water or flues to heat it; as soon, then, as sufficient leaves can be obtained to half fill it, or, indeed, as they are gathered, they may be put in, and, being protected from wet by the lights, will sooner commence to heat: these will afford bottom-heat, and assist also the atmospheric heat; the rest must be secured by shutting up the solar rays when they can be caught, and by the application of linings of leaves and dung outside the pit. Air, however, must be given in the forenoon of fine days, shutting up early, so as to secure all the warmth possible in the afternoon. The rising of the temperature from the sun's rays after it has passed the meridian may be safely indulged in, but mischief may arise from the same course before that time, if air is not given. In frosty weather, straw and refuse hay may be piled against the pit walls, and a covering of hay and mats over the glass. As the plants approach a flowering state, they may be removed to the sitting-rooms or greenhouse; and if the pit is not required very early for cucumbers or melons, some of the bedding plants may be introduced, to afford cuttings; or some of the plants from the loft, shed, or outhouse may be exhumed from their hiding-place, and here receive rather better treatment.

ON THE CULTIVATION OF THE CACTI.

BY FREDERICK OTTO.

(Translated from the Garten Zeitung.)



HERE has already been so much written in this periodical on the cultivation of the Cacti, that it might be thought that everything relating to this group of plants was thoroughly known, and the subject almost exhausted. But this is not the case; and a great deal not yet made known

remains to be investigated.

In almost every garden where Cacti are cultivated, a different method is followed; and it is always that which the cultivator finds to be the most suitable and effectual in promoting the growth and vigour of his plants. It is true that, for the cultivation of this family, there is, up to the present moment, no general rule which seems to be commonly received everywhere. According to the latest accounts of the most recent travellers and collectors, the Mexican Mammillarias are found in such a variety of situations, and in such different soils (as may frequently be seen by the earth attached to the roots of the original plants when they first come over), that a great deal more attention should be paid to their soil than has unfortunately been the case hitherto. Many of the species are found on lime, chalk, and the fragments of stones or rocks that have become broken by the action of the atmosphere; and among these may be mentioned the Mammillarias discovered in Mexico in 1840, called M. Parkinsonii Ehrenb. and M. Schlechtendalii, both of which were found growing on a chalky range of hills in Mexico, near San Onofre in Mineral del Doctor; and according to the Linnaa, vol. xiv. p. 375, M. Humboldtii is also found on a chalky range of hills between Yzmiquilpan and Mestitlan. Echinocactus turbiniformis seems wedded (so to speak) to bare and precipitous rocks; and the Ariocarpus retusus flourishes on a moory soil, where it is always moist. Were all these plants, therefore, put in a soil that the gardener might fancy was congenial to them, it stands to reason that they could not grow, as such a treatment would be totally against their nature. If he try to excite the roots by a change of soil, or by putting the plants in a hot-bed full of vapour, he will not succeed; and unfortunately too many gardeners fall into this error, and by this means the best and rarest plants, which have been preserved during a long voyage, have been totally lost by a wrong mode of culture.

Where nature cannot be imitated exactly, the most earnest wish of the gardener should be to approach her as near as possible, and in this consists the great art of the cultivator. The different kinds of soil are not alone necessary for the growth of the plants: situation and temperature must also be taken into consideration. For some years back, collections of Mammillarias, from whatever parts of the world they came, were grown in our hot-houses, and many of them are still kept there. The West Indian species, such as *M. simplex*,

prolifera, and straminea, which have been long in our possession, and which really require a greater degree of heat than those from Mexico. probably gave us the idea. We do not take into consideration that almost all the species brought to us from Mexico belong to our tepidaria, and therefore require a temperature of from 45 deg. to 50 deg. Fahr., so as to produce a healthy and vigorous state of vegetation, and some of the species even do better with a less degree of heat. A great many examples might here be given of the alterations that are produced in the form and habit of the Mammillarias from Mexico, by their being placed in stoves; and it is from this circumstance that those plants that have been raised from seed, or by other means, in Europe, have not the least resemblance to the parent plant, and are therefore received in the trade as new species-indeed, in some instances, the most skilful connoisseurs and the best botanists have been often deceived with these plants. As is the case with most other plants, this family is subject to sport, and these sports we receive in great numbers from their native country; other plants, again, of the same family, which have been kept in an over-heated temperature, are hardly to be recognized, and thus errors are propagated, arising from an impossibility of distinguishing the species or variety. If we contemplate the host of varieties of the division Conothelæ, which we have partly from their native country and partly from plants raised in Europe, it will confirm this statement.

It may be seen from this that the Mexican Mammillarias, with few exceptions, should be grown in a much lower temperature than is frequently the case. To prepare them for it, they should be planted in beds in the open air, so that they may become strong, and remain there till late in the autumn; and it is only thus that the natural habit and peculiar character of the plant can be obtained. When treated in this manner they flower plentifully, and produce an abundance of fruit, and are not infested by insects,

which is unavoidably the case in hot-houses.

These are the advantages which are obtained from a successful treatment of this favourite genus of plants. Many gardens now

possess very good collections by following this plan.

The *Melocacti*, on the contrary, require a higher degree of temperature, and therefore ought to be in the stove. Most of them come from the West Indies, Curacoa, St. Thomas's, etc. There are several varieties in this group, which approach more or less to the *Melocactus communis*. Whether they are all to be considered as varieties must be, from careful consideration, afterwards determined. Most of the original plants evince by their roots that they grow in a red loamy and stony soil; and these, in my opinion, should also be cultivated as I have mentioned.

The Echinocacti require somewhat more heat than the Mammillarias, yet they may be cultivated in beds in the open air in summer. In winter they should be kept in a temperature of 50 deg. to 55 deg. Fahr., and ought to have but very little water; and if they have taken firm root in summer they may be kept quite dry, and will not be in any danger. From this necessary state of rest, a profusion of flowers will be produced on the plants.

Many doubts still exist as to the species of Cereus, as they vary so much both in their habit and spine and angular formation, and the situations in which they are found do not seem to make any exception in this respect. A recent traveller and collector informed me that he found from four to six different forms on the same stem, so different that even the greatest connoisseur would have supposed each separate branch to have been another species; and his specimens confirmed the assertion.

The genus Cereus, with the exception of some species, flowers more sparingly than those of Mammillaria and Echinocactus; but, from an improved method of cultivation in modern times, many species have been brought into flower that were formerly not expected. Most of the species may be cultivated in the open air, in a protected sunny situation, in summer, and it is better if they can be on beds that have a little bottom-heat at first; and this can easily be effected in gardens where there is plenty of leaves and manure, as pits can be dug, and these materials put in and then covered with earth, and the plants sunk into it. They grow extremely well in this manner, are much stronger, and look a great deal better than when they are continually standing in a hot-house. Several species of Mexican Cereus can be kept through the winter in a moderatelyheated greenhouse. Those alluded to are such as C. chilensis, cinerascens, pentalophus, ovatus, articulatus, Martianus, flagriformis, Mallisoni, Smithii, Schrankii coccineus, Ackermanni, etc., with all

the varieties of C. speciosissimus, etc.

Our knowledge of the numerous group of the flat-branched Opuntiæ is much too limited at present to enable us to determine the species, but we hope in time to establish a system, and particularly for those gardens where this tribe of plants is cultivated. What a difference between an Opuntia which has been grown in the open air in summer, and one which has been kept in a hot-house! The difference is indeed so great, that it is hardly to be believed. The most effectual manner of cultivating them in winter is, to take great care not to keep them too warm, and to see that their growth may not be accelerated, as a stagnation in vegetation should, if possible, be effected in the plants. As soon as the weather is favourable in spring, and strong frosts no longer dreaded, they should be set out in the open air, in a warm, protected situation, and treated in every respect as much as possible like the genus Cereus. Bottom-heat, however, is not necessary for them in the open air, as they thrive better without it, the different species assuming a more distinct character, and having a greater profusion of flowers. How very different, also, are the O. glomeratæ, grown in the open air in summer, and in the cold greenhouse in winter, to those that have been continually in a stove, the temperature of which is not natural to them. The same may be said of O. cylindracea, and particularly O. tunica, excuviata, imbricata, Stapelia, and decipiens. The first mentioned never has a stem in its native country or in our cold greenhouses, but has, on the contrary, a full branchless caspes, in the form of a hedgehog. This appearance is not uncommon, even on specimens from their native country, but their

natural form and character are destroyed by an injudicious mode of culture in our houses.

Most of the species from North America, from Mexico, Chili, and the South of Europe, may be kept through the winter without fear of danger, by putting them in a temperate dry greenhouse. If put in a hot-house for the winter they will soon become sickly, from attacks of the scale and other insects. Dr. L. Pfeiffer's description and synonyms of the living Cacti in the German gardens point out the native country of every species of Cacti, and should, therefore, be used as a guide by every cultivator.

ADVICE ON PRESERVING FRUIT.

W.S.

T is quite as important to keep fruit well as to grow it well; for, independent of the advantage of maintaining a supply until rhubarb and strawberries come in with the opening of a new summer, the festivities of the winter season, and of Christmas especially, make great inroads on the fruit-store, and without a good fruit-store those festivities must

be either additionally expensive or lack one at least of their prominent attractions in the way of table decoration and gustatory enjoyment. That fruit-keeping is not reduced to definite rules so as to be worthy of the name of an art, much less to make pretensions to come within the domain of science, is certain from the variety of the methods adopted, and the occasional failure of many or even all of them. We have more than once recommended a simple plan which has been long followed in our own household, and has proved the best of many which have been submitted to the test of experience. We have a number of glazed earthenware pans, the measurement of which is sixteen inches inside measure. These are all provided with close-fitting lids, and at the top of the house there is a broad platform assigned to one lot; and at the bottom of the house, in a cool, dry, underground cellar, which has a thorough ventilation through it, is a rack-shelf running all round, where another lot is placed. These pans we use only for apples and pears that are to be kept as long as possible, and in them they keep till far into the next spring, if proper precautions are taken in their management. In either case they are safe from frost. At the top of the house there is a slight rise of temperature on a sunny day, which is checked by means of a window which opens over the platform, but any serious rise is prevented by the distance of the platform from the roof, which is twenty feet above it, with a hollow loft intervening. The fruit is put in the pans when quite dry, with no sawdust or any other material between them. Just as gathered, without being rubbed, they are consigned to these receptacles, and in storing them every one that has the slightest speck is either thrown out for immediate use, or left over to form the top layer. When the pans are full, the lids are shut down close, and the pans set in order, and from that time till the whole are consumed, the pans are opened once a week, the lids left off for an hour, and then replaced. At the same time, any fruits that show a tinge of brown, or any other sign of decay, are removed. At every alternate airing-that is, once in a fortnight-a few of the top layers are removed, and perhaps one or two in the centre lower down, which allows of a pretty clear view of their general condition, and once a month the whole are taken out and replaced, and, of course, any removed altogether that show signs of distress. Decay is infectious; an apple that may have a slight bruise may pass muster at first, but in a very short time a brown patch breaks all round the spot where it has been injured. If allowed to remain in the midst of a lot of sound fruit, those next it become similarly affected, and if no care be taken the whole store may very soon pass into a state of useless and obnoxious jelly. The examination is but a small task, even where there may be many varieties of fruit so stored. With an extra pan ready, the operation commences with removing the fruit from the first pan into that, and so on to the end, when the pan last dealt with will remain over to commence with next time. The rationale of the method appears to be that the exudations from the fruit condense upon them and form a sort of varnish. Being shut

out from the action of the atmosphere, the juices undergo a gradual change, and some portions of the acid are converted into sugar. Probably, also, carbonic acid is inclosed. Be the chemistry of the process what it may, we are satisfied that it is the best method of preserving apples and pears where the stock is of moderate extent. Where large quantities have to be dealt with, a more wholesale method must be adopted, and even then a store of pans for such sorts as Sturmer Pippin, Normanton Wonder, and other sorts that keep very late, should be resorted to to

insure a supply to the very last. Another and equally good method, and one applicable to fruit in large quantities, is by storing in sand. In a good dry shed, construct a set of bins, the front of which should slope outwards. Get a supply of pit-sand, sufficient to fill the bins three parts full, and have it thoroughly dry when used. Where the heat of a kilu is available, the drying of the sand is but a small matter; in many places the heat of a kitchen fire could be turned to account; certainly the sand must be dry. In storing, get the fruit into the bins the day after gathering. Lay down a bed of sand six inches deep on a dry stone, tile, or wooden bottom; then lay the fruit regularly, and fill up as you go on, taking care that no two fruits touch each other all through. Lay six inches of sand over all, and the work is completed. The same process may be followed with boxes, and every egg-chest or old hogshead about the place, if sweet and clean, may be pressed into the service, or even if a few boxes are made for the purpose they will pay their cost in one season. Fill these in the same way, and store them anywhere for convenience sake, provided they are in an equable temperature; the cooler the better, but guarded against frost and damp. In conjunction with the sand system there should be in a rather warm place, a shelf of suitable size with a rim along the front edge; on this shelf lay two inches of dry sand or chaff, or any loose non-conducting clean material. The shelf should hold enough for a fortnight's consumption, and should be kept replenished at one end, and the fruit used from the other, and shifted along from time to time to keep the shelf full. By this method the cook can help herself to ripe fruit as she requires it, and there need be no complaint of its quality or want of time to get it at a moment's notice from the store. A few choice pears, taken from a bin or pan, and placed in a drawer of a table or in a fruit dish, and shut up in a warm cupboard or chiffonier for a week, will acquire perfect ripeness and full flavour. Melting pears ought always to have a little warmth to render them fit for dessert.

When a fruit-room is determined on, a north aspect should be chosen, and there should be a window at each end with shutters, to allow of darkness, daylight, and ventilation at will. As a rule, the shutters should be kept closed, and as little ventilation allowed as possible, though occasionally a breath of air for an hour in the morning may be requisite. In a dwelling-house, a top room under a loft facing east or north may serve very well; but where an outhouse can be appropriated for the purpose, it will be a further advantage to have the fruit-room below the general level-of course quite dry; and if expense be not an object, built with double walls, which resist frost and heat alike. The best temperature is an average of 42° ; frost is destructive, and a temperature over 50° not much less so. In large places a hot-water pipe could be carried along the cavity between the inner and outer wall, and during severe weather enough heat could be supplied to prevent the temperature of the storc-room falling below a proper minimum. For the shelves beech or elm should be preferred to deal, which is apt to communicate a flavour of turpentine. We have found wellseesoned red deal answer for kitchen apples and baking pears, but we should not like to trust any kinds of dessert fruit to it. In managing such a room there must of course be pretty free ventilation when first stored; but that should be diminished, and in the course of a fortnight cease altogether, except for such occasional uses as changes of weather, etc., may necessitate. Damp must be driven off by a brisk current, and the window closed as soon as possible. Light should be admitted only when required for inspection and removal of fruit, and a sharp watch must be kept against rats, mice, and all other vermin.

Mr. Donald, nurseryman, of Woking, gives the following account of his method of preserving apples. He says: "This year I tried an experiment to preserve some apples in a ridge of earth, the same way as we do potatoes in this part of the country. I had a trench dug five feet deep, one foot below the surface of the ground, and twelve feet long. I covered the whole surface of the bottom and the

sides with turfs of grass, the grassy side upwards, and then filled the space with golden nobs and some French apples, about two feet and a half deep in the centre, sloping a little to the sides, and then covered them close with turf, to keep the fruit clean, the grassy side next the apples. I then covered the ridge with soil a foot thick to keep out the air and frost. At the end of April I had them taken out in fine preservation. I again, last autumn, kept fifty bushels in the same way, with equal success." This writer refers to several gentlemen in the same neighbourhood who were equally successful (after his communication) in keeping upwards of 200 bushels of apples until May in the following year.

Perhaps a word or two may be useful, in conclusion, on the gathering of fruit; for unless it be properly gathered, it is just impossible to keep it, no matter what plans are resorted to. There must be no bruising, no tumbling of it about on the grass, or rolling it headlong from baskets to wooden floors. Let the gardener handle them as Isaac Walton handled frogs, as if he loved them. The careless way in which fruit is half torn from trees, and shot like gravel on to barn floors and kitchen pavements, has more to do in rendering it scarce in the depth of winter than any of the mistakes as to keeping. Gather before it is dead ripe, when it parts easily, and has its proper colour. To heap up for fermenting is a mischievous practice; all it does for the fruit is to set the first stage of decay in action. A careful handling and preservation in an equable temperature are the two leading points; after that use the vigilant eye, and you will be repaid for your extra trouble by having plenty of apples, pears, and quinces when such things are scarce, and when, if you have not used such precautions, you must pay high prices for the enjoyment of them.

Shrubs which Thrive under the Drip of Trees.—The following shrubs are found to thrive under the spread and drip of trees, and at the same time are very ornamental and useful for planting on the sides of wood rides, for forming game covert. In planting shrubs with a view to produce shelter, ornamental effect, or game covert, I would advise that they should never be scattered promiscuously over the ground as single specimens at wide distances apart, but should be planted in groups, say each plant three to four feet apart, and a mixture of a few kinds in a mass, taking eare to keep the low-growing and less rambling sorts next to the wood rides. Common and Portugal Laurels, Rhododendron ponticum, Azalia pontica, Taxus baccata, Ruseus aculeatus and hypoglossum, Cotoneaster buxifolia, microphylla, and Hookerii; Pernettya mucronata (for peat soils), Phillyrea of sorts, Rhamnus alaternus, Broom, Leyessteria formosa, Box of sorts, Juniperus communis and sabina, Potentilla fruticosa, Buddlea globosa, Viburnum lantana and opulus, Gaultheria Shallon, Ribes of sorts, Weigelia rosea, Euonymus europæus, Berberis aquifolius, duleis, Darwinii, vulgaris, and vulgaris purpurea, Hippophae rhamnoides and angustifolia, Arbutus unedo, Garrya elliptica, Rosa rubiginosa, Symphoria racemosa.

G. Berry, in The Field.

MARBLE DUST AS A FERTILIZER .- Limestone, marble, and chalk, are alike in composition, for they are each composed of lime and carbonic acid. The main difference in composition is the presence of a very small quantity of iron, or other metal, which darkens the limestone, and shades some beds of marble. The compactness, the degree of crystallization, and other causes, give a different physical appearance to the three forms of carbonate of lime. Burn limestone, marble, or chalk, to drive off the carbonic acid, and in each case you have caustic lime remaining. Grind or pulverize them, and in each case you have a powder which is chiefly carbonate of lime. On some soils entirely deficient in lime, the unburned powder may be beneficial, but we suspect not greatly so, from the fact that on soils filled with limestone, and even partly made up of the detritus of limestone, good results are derived from burning a part of the limestone, and applying it in this state to the soil. The expulsion of the carbonic acid leaves the caustic lime in a state to act more energetically as a neutralizer of acids in the soil, and as a decomposer of organic materials to fit them for plant food. The fact that air-slaked lime, which is in a measure re-carbonated, is somewhat beneficial, would indicate that very finely powdered limestone, or marble, or chalk, should be of some value, though its comminution is infinitely less than when disintegrated by fire. Marble dust may be used on heavy soils as an ameliorator to change the physical condition, and to ultimately affect the chemical constitution .- American Agriculturist.

NEW PLANTS.



OMBEYA ANGULATA (Gard. Chron., 1867, 74).—Malvaceæ. A plant has flowered at Kew, which Dr. Masters believes to be the D. angulata of Cavanilles. It is a shrub, or small tree, with loosely spreading branches, the leaves covered with long soft hairs, the flowers in clusters of eight or ten each, pure white and agreeably fragrant. It is likely to

prove a valuable addition to the winter-blooming stove plants.

Figus Suringarii, Suringar's Fig (Neerl. Plant., 1866, t. 3).—Moraceæ. A handsome stove plant, of erect habit, with cordate serrate leaves, the five main ribs

of which are of a deep rosy red colour. Native of Amboyna.

PAVETTA HOCKERI (Neerl. Plant., t. 28).—Cinchonaceæ. This is the Ixora odorata of Sir W. Hooker (Bot. Mag., t. 4191), and is considered by Professor Oudemans as inadmissible to the genus Ixora.

ANTHURIUM REFLEXUM (Gartenfloro, t. 519).—Orontiaceæ. A stemless stove perennial, with thick green cordate leaves, ovate spathes, and thick oblong spadices. Native of tropical America.

PLATYCRATER ARGUTA (Gartenfl., t. 516).—Hydrangaceæ. A hardy shrub, with ovate-lanceolate leaves and white flowers, "not of a very showy character."

AMPELOPSIS SERJANIÆFOLINUS (Gartenfl., t. 531).—Vitaceæ. This is the Cissus viticifolia pinnatifida of Siebold. It is an elegant hardy climbing shrub.

ASPERULA AZUREA SETOSA, Blue-flowered Woodruff (Gartenfl., t. 523, 4) .-

Galiaceæ. A pretty blue-flowered annual from the Caucasus.

Bossiel Hendersoni (Gartenfl., t. 523).—Leguminosæ. A neat greenhouse

shrub, with small ovate distichous leaves and flowers stained with red.

DAPHNE GENKWA (Gartenfl., t. 499).—Thymelaceæ. A neat half hardy shrub of two to three feet high, with lanceolate leaves and fascicles of from three to seven rather large lilac flowers. The flowers appear in April in advance of the leaves.

GONATOSTEMON BORCHEANUM (Gartenfl., t. 526).—Cyrtandraceæ. A stove sub-shrubby plant, representing a new genus. It grows one to two feet high, with fleshy, flexuous, hairy branches, opposite ovate leaves, and solitary axillary purplish woolly two-lipped flowers.

NIDULARIUM LAURENTII (Gartenfl., t. 529).—Bromeliaceæ. A beautiful stove plant with ligulate leaves, which are at first whitish, and afterwards change to

green, with brown blotches. The flowers are of a pale greyish blue.

Sedum Japonicum (Gartenfl., t. 513, 3).—Crassulaceæ. A half hardy perennial, with spathulate green leaves, and terminal cymes of yellow flowers.

SEDUM MAXIMOWICZII (Gartenfl., t. 528) .- A hardy plant allied to S. aizoon. It grows a foot high, the leaves are toothed, the flowers in cymes, bright yellow.

ONCIDIUM NUBIGENUM, Cloudy Oncidium (Gard. Chron., 1867, 376). Orchidaceæ. "A gay little plant, with spikes of flowers appearing as if they were diminutives of Odontoglossum Phalanopsis. The petals and sepals are brownish, with a crimson hue; the lip is subject to many variations.

EPIDENDRUM AMETHYSTINUM (Gard. Chron., 1867, 376).—Orchidaceæ. A small but graceful epiphyte, with short raceme, bearing about a dozen amethyst-

coloured flowers, nearly as large as those of Rodriguezia secunda.

EPIDENDRUM EBURNEUM, Ivory-like Epidendrum (Gard. Chron., 1867, 404). -An elegant plant, with yellowish green sepals and petals, and a snow-white lip.

ODONTOGLOSSUM CROCATUM (Gard. Chron., 1867, 404).—This is in the way of O. concolor, but there are more flowers, and they are smaller, and of a very bright vellow.

ODONTOGLOSSUM ROSEUM (Gard. Chron., 1867, 404).—This may be compared to Rodriguezia secunda, but the largish flowers are of a rich rosy purple, and the

three-lobed lip is paler.

NASONIA CINNABARINA (Gard. Chron., 1867, 544).—A terrestrial orchid of humble growth, producing beautiful scarlet flowers. It is a native of high mountain ranges in South America, and therefore will require cool treatment.

Dodecatheon Jeffrey's American Cowslip (Flore des Serres, t. 1662). -Primulaceæ. A beautiful hardy perennial, with lanceolate leaves and umbels of nodding rose-coloured flowers.

GRIFFINIA HYACINTHINA MANIMA (Flore des Serres, t. 1667).—Amaryllidaceæ.

A handsome stove bulb, the leaves are ovate-oblong, the flowers white, banded

with blue.

Hydrangea paniculata grandiflora (Flore des Serres, t. 1665).—A fine half hardy shrub, with elliptic leaves and large branched pyramidal panicles of white flowers.

MAGNOLIA LENNEI (Flore des Serres, t. 1693).-Magnoliacex. Probably the finest of all the deciduous group of magnolias, and admirably adapted for forcing.

The flowers are large, white within, reddish purple without.

MARANTA ILLUSTRIS (Flore des Serres, t. 1691) - A good figure of this magnificent plant.

MARANTA ROSEA PICTA (Flore des Serres, t. 1675).—A faithful portrait, showing the brilliant colours most accurately.

Zea Japonica albo-vittata, Variegated Japanese Maize (Flore des Serres, t. 1673).—A fine annual grass, the leaves striped with bands of white and green.

BOLEOPHYLLUM SIAMENSE (Gard. Chron., 1867, 572).—Orchidacew. This has pale yellow flowers, striped with purple lines; it stands between B. Lobbii and Reinwardtii.

ODONTOGLOSSUM NEBULOSUM (Gard. Chron., 1867, 572).—This difficult orchid has been several times lost, and is as yet but imperfectly understood. There are

two varieties, one with brown, one with red blotches.

EUCODONIA NÆGELIOIDES (L'Hort. Franc. 1867, t. 3).—Gesneraceæ. A beautiful stove plant, with broad ovate leaves and large gloxinia-like flowers of a fine rose, spotted with crimson.

FITTONIA ARGYRONEURA (Flore des Serres, t. 1664).—Acanthaceæ. tiful stove herb, bearing a profusion of broad oval leaves of a bright green colour,

marked with a network of pure white veins.

LELIA PILCHERI (Floral Mag., t. 340).—Orchidaceæ. A hybrid raised by Mr.

Dominy from L. Perrinii, fertilized with L. crispa.

SEDUM MAXIMUM VERSICOLOR, Many-coloured Major Sedum (Flore des Serres, t. 1669) .- Crassulaceæ. A hardy plant of the Telephium group, leaves roundish oblong, green in the centre and margined with white.

CYRTODEIRA MONTALENSIS (Gard. Chron., 1867, 655).—Gesneraceæ. A pretty plant from the Chontales gold region of Central America. The leaves are purple on the under side, and on the upper light green, with very dark green blotches. The flowers appear in November and December, and are lilac, as large as a crown piece.

EPIDENDRUM SOPHRONITES (Gard. Chron., 1867, 655).—An unattractive species,

not worth describing here.

ODONTOGLOSSUM NEBULOSUM CANDIDUM (Gard. Chron., 1867, 710) .- A pretty

variety, lacking the blotches on sepals and petals.

Passiflora Banksii (Gard. Chron., 1867, 782).—A greenhouse climber from Queensland. The flowers are of a pinkish hue, and are succeeded by oblong greenish fruit about an inch in length. It has been lately flowered by W. K. Curtis, Esq., of Canterbury. It is the Disemma coccinea of De C. Prod. III. 333.

GOODYERA MACRANTHA (Gartenfl., t. 533, fig. 2) .- Orchidaceae. A dwarf nearly hardy orchid, with ovate leaves, which are bordered with yellow, and in the central parts are of a dark green, reticulated with pale green lines like an Anxe-

tochilus. The flowers are pale rose-coloured.

GOODYERA VELUTINA (Gartenfl., t. 533, fig. 1).—A stout-growing, nearly hardy orchid, the leaves of a deep velvety purplish green rib on the upper, and a

violet tint on the under side.

LAMPROCOCCUS WEILBACHII (Gartenfl., t. 539).—Bromeliacex. A stove herb with tongue-shaped leaves, and a single panicle of flowers, which are bluish violet

Aerides Vandarum (Gard. Chron., 1867, 999).—This plant has been confounded with A. culindricum, but it is quite distinct. It has pretty white flowers, reminding one of Vanda flowers, by the reflexed sepals and the undulations of both petals and sepals.

DENDROBIUM CAPILLIPES (Gard. Chron., 1867, 999).—Orchidacea.

little species, with a small golden flower. It is a native of Moulmein.

Lælia Majalis, May-flowering Lælia (Bot. Mag., t. 5667).—A magnificent Mexican orchid, long known to botanists. The large handsome flowers are of a beautiful rosy-lilac colour, the lip is white with lilac streaks and lilac margin.

ECHMEA GLOMERATA, Crowded-flowered Æchmea (Bot. Mag., t. 5668).— Bromeliaceæ. A fine Brazilian plant, easy of cultivation, and very effective at a season when the tropical houses are rather deficient in conspicuous plants. The flower-scape is stout, six to eight inches high, bearing a brilliantly-coloured bloodred branched panicle of large bracts studded with small violet flowers.

RONDELETIA PURDIEI (Bot. Mag., t. 5669).—A charming fragrant hothouse shrub, bearing ovate, oblong, grass-green leaves, and large corymbs of pale yellow

flowers.

Thapsia decipiens (Bot. Mag., t. 5670).—Umbelliferm. One of the most remarkable umbelliferous plants in cultivation, elegant in habit and leafage, but of little beauty as regards inflorescence. It has a slender, erect, annulate, palm-like stem, two to four, or even six feet high, and half to one inch in diameter, bearing at the top a splendid waving crown, three to four feet across, of two to three deeply cut leaves.

EPIMEDIUM ALPINUM, VAR. RUBRUM (Bot. Mag., t. 5671).—Berberidæ. An elegant hardy herbaceous plant, adapted for rockwork or for early greenhouse decoration. It is distinguished from E. alpinum only in the rather larger size and the red colour of the flowers.

THE CENTIGRADE THERMOMETER.



EVERAL eminent horticulturists have expressed themselves desirous of seeing the centigrade scale take the place of Fahrenheit's, and Dr. J. D. Hooker, the learned director at Kew, has fully and fairly stated its advantages. The centigrade is more readily applied to practical purposes than Fahrenheit's scale, and may be more easily understood,

for it is a true scale, whereas the other is but an attempt to form a scale. The only possible objection to the centigrade is that its divisions are too large, but this may be obviated by again dividing them, and possibly the best plan would be to divide them into tenths, as in the divisions of inches on the scale of the barometer. That 32° should be the technical description of the freezing point is simply absurd, and has always been felt to be so; but Fahrenheit's "zero" is even more absurd, because we know nothing of zero in relative temperature, and in the first instance it was an assumption which experience soon after proved to be unsound. There can be no doubt that the centigrade scale will be the subject of considerable discussion, and that it will ultimately come into general use, and in anticipation of a possible want, we have given amongst the tables in the "Garden Oracle" for 1868, a comparison of the three scales of the centigrade, Reaumur's, and Fahrenheit's, to facilitate the conversion of one to the other without need of calculations.

GARDEN GUIDE FOR DECEMBER.

Kitchen Garden.—There is little to be done now but to dig and manure vacant plots, and the more earnestly this is done the better. By thorough good work of this sort now, the ground may be brought into fine condition for spring sowing, and the general hurry that prevails in spring may be mitigated. Peas and beans may be sown on warm dry slopes; rhubarb, horse-radish, and sea-kale may be planted.

Fruit Garden.—Fruit-trees of all kinds may be planted, and the sooner the better. If strawberry-beds are to be planted in the spring, as recommended by Mr. De Jonghe, now is the proper time to prepare the beds. Pruning should be performed in mild weather, if possible, but there is no danger to the trees by pruning

during frosts of only moderate severity.

Flower Garden.—Flower beds that have been many years in use and had but little manure should be deeply dug, the clods well broken, and a good dressing of rotten manure dug in. Where calceolarias are to be planted next season, a very heavy dressing of manure should be given, to make the ground rich, as for sea-kale or cauliflowers; but the manure must be quite rotten. Bulbs planted now will flower very well in spring.

Greenhouse and Stove.—Take especial pains to prevent injury to plants by drip and damp. If there is time to have all the glasses of planthouses, pits, etc., well

cleansed, the labour will be well repaid, in the improved condition of the plants, by the increase of daylight. Plants in flower must have warmth enough to sustain them, and a genial heat must be kept up where Poinsettias and Euphorbias are, or they will flower but poorly. Camellias and oranges coming into bloom should be well cleansed, to make the foliage bright. Primulas and cinerarias must be near the glass. Hard-wooded plants must be kept as cool and dry as will be safe for them.

glass. Hard-wooded plants must be kept as cool and dry as will be safe for them.

* * Past issues of the Floral World contain copious calendars of operations, and the Garden Oracle has a complete and concise calendar, adapted for reference. For these reasons, the "Garden Guide" will be on a contracted scale this year.

TO CORRESPONDENTS.

PINCHING AND PRUNING.—Your article on "Fruit Prospects," in the November number, wherein you condemn summer pinching as a delusion, has "almost taken away my breath." I admit, that though I am managing a moderately large collection of bushes and pyramids of pears, apples, plums, etc., by that method, my experience is not yet sufficient to warrant giving an opinion, as they are only just coming into fruit; but if summer pinching of pyramids and bushes be a delusion, what becomes of espalier and wall-tree pruning, for the former appears to be merely carrying out the principle of the latter? Would you abstain from pinching your pyramids in summer, and depend on winter pruning? If so, can you say why it is right to pinch the shoots of espaliers according to the established method (vide, for instance, Thompson's "Gardener's Assistant," on espaliers), and why wrong to do the same to your pyramids? You may be perfeetly right, even though unable to explain so apparent a contradiction, but it would be satisfactory to have it explained. Or are you inclined to extend the same condemnation of summer pruning to espaliers also? What, too, about horizontal cordons, which are miniature espaliers? They must be pinched constantly to exist as such at all—so, at least, it appears to me. The comparison made between the two methods of pinching and letting alone would be fairer if the "imaginary apple-tree" was in the open ground, and not in a pot. Pray tell me how you would manage one of your "melon or mother apples" or "Imperatrice values"; if planted using a replaced house a repeated to the same and the same and the same are same and the same are same as the plums," if planted out in an orchard house, as you advise. Would you let them have their own way all the summer? As I understand you, you would pinch to form your tree, but not otherwise. You would also root prune, or remove annually or biennially. I am glad to find, as I believe, that experience still approves of the latter, as it is my only reliable method of preventing canker from the roots penetrating a cold clayey subsoil, which having been drained three feet deep, at twelve feet apart, down to a slate-grit rock, still remains cold and wet. But trees will soon become unmanagable for removal, unless cut in to a certain size at one season of the year or another, as espaliers are .- A. B.

We expressed ourselves, no doubt, in rather strong terms, through having paid dearly for experience, and become quite accustomed to see people led astray by the advocacy in certain quarters of the practice of excessive pinching. It is quite true that a certain amount of pinching, to direct and regulate the growth, is good, and with espalier trees (which, of course, include cordons) the practice is essential. So, again, trees planted out under glass may be pinched with advan-tage, if with skill, but unskilful pinching is far worse than leaving the trees to grow wild. After making all these allowances, it still remains a fact that thousands have been persuaded to plant paltry little trees, and prevent them ever acquiring a vigorous state of growth by excessive pinching. We advocate allowing the trees to acquire some degree of vigour, and to this end free growth is one of the first requisites. When penning the article to which you refer, we had in our mind several collections of bush and pyramid trees that had been treated on the severe pinehing system, and had produced nothing, and had subsequently been left to grow freely, and had become fruitful. It is quite true that if little trees are regularly and severely pinched, they become prematurely fruitful, and that miniature trees in this fruitful state may be bought, and are really sold by thousands. But the question arises, what is their value? Our opinion of these stunted trees is, that they are of no value at all, and that opinion we offer in these pages for the good of our readers, and for no other purpose. The fact is, the dwarfing system has been carried too far, and we are expected to be delighted with the smallness and wiry character of the pigmies, instead of at once perceiving that, as fruit-bearers, such paltry things are of necessity worthless. There must be wood before fruit, and there cannot be wood unless we encourage growth. Root-pruning is another matter. We do not hear it proposed to nip back the roots all the summer; no, they are allowed to extend as they will, and the pruning is done at the season of rest. So winter pruning of the shoots is different to summer pinching, for the simple reason that the buds and spurs allowed to remain have had the advantage of the

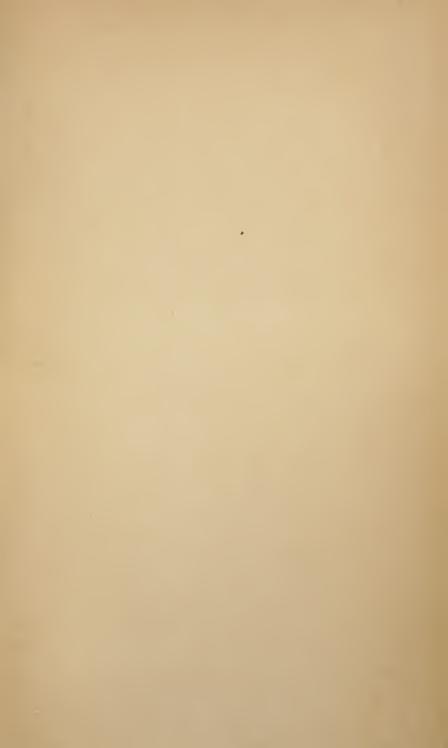
whole vigour of the shoot during the season of growth.]
Grafting Vines.—Subscriber.—The best mode of grafting vines is that calle d the whip or tongue graft, but any mode may be pursued that insures a good junction. If the roots of the vines to be grafted are within the house, the grafting may be performed at the end of February; but if in an outside border, the latter part of March will be preferable, or even the middle of April may be early enough. The branches to be used as grafts should be cut some time in advance, and be kept in damp earth to preserve them in a plump condition. When the graft is put on, earefully tied, we prefer to cover it with clay rather than use grafting wax. The French cultivators put on grafts in autumn by splitting the stock at a fork, and inserting the graft as a wedge; they then tie and clay. The American cultivators requently graft just above the roots of the stock, and then heap soil over, just allowing the point of the graft to peep through. Amateurs not skilful in grafting will find it safer to inarch, and this process is most easy of accomplishment.

HEMONY.—A. L. G.—We promised to consider your query at the first opportunity, and we have at last made an opportunity for it. The lines in Milton's

Comus (1.638), in which reference to the plant occurs, are as follow:-

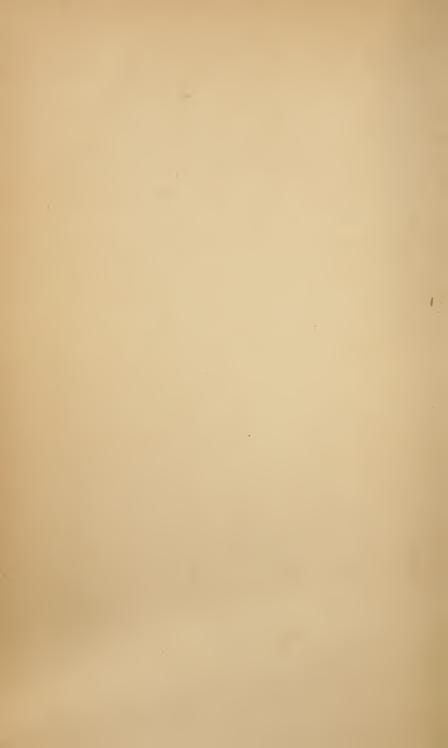
"—— a small, unsightly root,
But of divine effect
The leaf was darkish, and had prickles on it,
But in another country, as he said,
Bore a bright golden flower, but not in this soil;
—— More medicinal is it than that Moly
That Hermes once to wise Ulysses gave;
He called it Hæmony, and gave it me,
And bade me keep it as of sovereign use
'Gainst all enchantments.'

The same plant is perhaps referred to in Ovid's "Metamorphoses" (lib. vii., 1.264)—"Illic Hamonia radices, valle 'resectus." In Dodven's "Herbal" (A. D. 1578), a plant useful against enchantments is described under the name of "Allysson," which would suggest to us a plant which we are all used to, namely Alyssum saxatile, the leaves of which are rather woolly (but not with prickles), and the flowers are golden-yellow. That it should be described as "not flowering in this soil" is consistent with the fact of the plant being but little known in Milton's time. Coloridge ("Statesman's Manual," Appendix B) refers to it as a purely mystical thing, and derives its name from the Greek $a\hat{i}\mu a$, "blood," and $a\hat{i}\mu a$, "when," and adds, "Bear in mind, reader! the character of a militant Christian, and the results (in this life and in the next) of the redemption by the blood of Christ, and so peruse the passage." Pliny (xxv. 20; xxvi. 25; xxvii. 17) speaks of a plant called Hemionion as a kind of rush or broom. We may, by such a stretch of fancy as is allowable in construing the descriptions of ancient writers, suppose the plant to be the furze; but "not in this soil" forbids us. The suggestion offered in "Notes and Queries" (vol. ii., p. 410), that the plant is a fern, known as Ceterach officinarum, or as Asplenium adiantum nigrum, seems to be scarcely worth consideration; for if we suppose the plant to be a reality, it must have yellow flowers. But who shall say that Milton had in his mind any plant at all? Perhaps we are searching for that which never existed but in the fancy of the poet, and which never had any use in the world, even of fancy, than to serve the purpose of the charming story.

















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